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Behind the curtain

Changes in public administrator's roles and work-
processes following e-service implementation

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Abstract

Public electronic services (e-services) have for a decade plus attracted both scholarly and political attention as the concept carries with it promises of heightened efficiency and an altered relationship between the governed and its government. Pivotal to the success of e-service implementation but often overlooked by academics, are the men and women responsible for its day-to-day maintenance - the public administrators. This thesis aimed at rectifying this neglect by posing the following research questions: (1) *how have the public administrators work been affected by the onset of the new technology (e-service)* and (2) *how has the public administrators been affected by organizational efforts to sustain the new technology (e-service)?* In order answer these questions three case-studies were conducted: the dentist department of the Swedish Social Insurance Agency, Swedish Tax Office and the Street and park department of the Trollhättan municipality. The case-studies were analyzed in the light of the two prevailing constructs on organizational change from technology implementation: change as incremental and informal or planned and formal. Some of the empirical findings suggest that e-service implementation provides an occasion for a shift in the roles and work-processes of the public administrators, however the cases-studies showed a great difference in the amount of changed experienced and precipitated the witnesses change.

Keywords: E-service, E-government, Public Administrator, Process, Roles, Implementation

Sammanfattning

Offentliga e-tjänster har under mer än ett decennium varit ämnet för både politisk såväl som forskningsmässig uppmärksamhet då fenomenet utlovar både ökad effektivitet och en förändrad relation mellan medborgare och offentliga aktörer. Avgörande för framgången vid implementerandet av e-tjänster, men ofta förbisedda i forskningen på området, är de män och kvinnor som arbetar med offentliga e-tjänster i sin vardag – handläggare och tjänstemän. Uppsatsen ställde två forskningsfrågor: (1) *Hur har handläggarnas arbete förändrats efter e-tjänsternas implementering?* och (2) *Hur har handläggarna påverkats av organisationens ansträngningar för att upprätthålla e-tjänsterna?* För att svara på frågorna konstruerades tre fallstudier av implementering av e-tjänster: Tandvårdsenheten på Försäkringskassan, Skatteverket och Gatu- och parkkontoret hos Trollhättans Stad. En analys av fallstudierna genomfördes sedan baserat på två dikotomier inom forskningsområdet organisatorisk förändring från ny teknik: successiv och inofficiell förändring och planerad och officiell förändring. Fall-studierna visade att e-tjänster mycket väl har förmågan att förändra handläggares arbetsroll och arbetsfördelning men graden av förändring och förändringens orsak skiljde sig åt från fall till fall.

Nyckelord: E-tjänster, E-förvaltning, Handläggare, Process, Roller, Implementering

List of Abbreviations

BPR	Business Process Re-modeling
BSC	Balanced Score Card
CT Scanners	Computerized Tomography Scanners
EPS	Electronic Prescription Service
ICT	Information and Communication Technology
NHS	National Health Service
PA	Public Administrator
SSIA	Swedish Social Insurance Agency
STO	Swedish Tax Office
TDC	Technological Distinctive Competencies
TQM	Total Quality Management
OA	Odontological Advisory
VAT	Value Added Tax

1. Introduction

Electronic Government (e-government) have, for the last decade plus, been the established term used to attribute changes in governance that are brought on by the use of Information Technology (IT). Defined by the World bank (2014) as the “... *use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government.*”,¹ the notion of e-government carries the possibility of a change in the relations between the governed and the government. E-government initiatives have for its duration as a concept also contained promises of a streamlining what is perceived as inefficient and bureaucratic governments, as well as to remedy some of the expected increase in public expenditure associated with well-fare states, such as Sweden.² The underlying argument for the urgency of e-government and e-service implementation is the aging population in these states, and the looming difficulties in the form of a declining tax-base and increased public spending on health-care that accompanies this development. The heightened efficiency promised by e-government efforts would help overcome some of these challenges, and this heightened efficiency would in turn provide some much needed legitimacy to the involved governments.³ Other e-government supporter’s focuses on the need of the citizen: as citizens have come to expect to be offered services with ease and comfort online from private enterprises, public offices need to learn to adapt to this development to stay relevant.⁴ Public agencies thus need to adopt new digital ways to govern which puts pressure on the different branches of government to collaborate, in order to be able to provide easy and accessible entry points for companies and citizens seeking public services.⁵

Akin to the importance given to this development, recent publications and action plans published by Swedish associations, municipalities and government agencies expresses the hopes attributed

¹ Electronic resource: World bank (2014)

² Jansson and lingren (2012) p. 3

³ Sveriges Kommuner och Landsting (2012)

⁴ Ebrahim and Irani (2005) p. 590

⁵ Goldhul and Perjons (2014)

to e-government in terms of time-efficiency, cost-efficiency and transparency.⁶ In 2009 the Swedish e-delegation was set up under the Ministry of Enterprise, Energy and Communications (Näringsdepartementet) with the explicit purpose of supporting and furthering e-development. In 2012 The Swedish Association of Local Government and Regions (SALAR) created a department to support its members in instigating e-government initiatives.⁷ Given the political and fiscal possibilities this development entails, it is perhaps not surprising that the topic has attracted wide-spread political and scholarly attention.⁸

1.1 E-services

The e-government scope consists of a wide-range of initiatives; however this thesis occupies itself mainly with digitalization efforts that shift the way government services are provided to its citizens. Such new ways of government provision of services is dubbed as e-services. Defined by Rowley (2006) as: “... *deeds, efforts or performances whose delivery is mediated by information technology*”⁹, e-service refers to the effort to utilize the Internet and web-based technologies for the provision of government services online.

E-services in public sector have attracted much attention from scholars as the development promises a shift in the provision of services at the core of the government prerogative. Public agencies deploy and make use of e-services attracted by the promises of legitimacy, effectiveness and openness that accompanies the concept, pushed in this direction by internal development strategies and external pressure to reform.¹⁰ The public administrations often make adopting these new solutions a priority in the effort to increase their legitimacy and status and to signal to their citizens that they are governed by innovative and ‘modern’ organizations.¹¹ This is not

⁶ Regeringskansliet (2013), Sveriges kommuner och landsting (2012)

⁷ CeSam, now the Department of digitalization.

⁸ Arduini, and Zanfei (2014). p. 480

⁹ Rowley (2006)

¹⁰ Weyland (2008)

¹¹ Girili Nygren (2009) p.138

always a rash decision on the behalf of government officials, as research shows that the quality of e-services mediates the general trust in public administrators (PA's).¹²

Following these promises many studies have been deployed to establish what determines the outcomes of e-service initiatives and what factors influence their effectiveness in an attempt to provide a guide to “best-practice”.¹³ As e-services, like all forms of governance, are concerned with issues of political, legal, managerial and organizational nature, as well as technical and regulatory issues, it is perhaps not surprising that this line of research has been inconclusive in its struggles.¹⁴ Given that the concept of e-services may include such a wide array of issues it is also not surprising that the research on the subject is equally diverse. Research conducted on e-services has included such divergent topics as: the effectiveness of e-services,¹⁵ democratic promises and the impact of e-services on the role of the citizen-government relationships,¹⁶ the legitimacy of e-services,¹⁷ and the security of voting systems.¹⁸ Given this diversity a common undertaking for scholars interested in the field of e-services and e-government has been to assess its development and to propose a theoretical framework.¹⁹ Often such studies conclude that the field is promising, albeit under-theorized and hindered by theoretical neglect stemming from an inability to build on previous research.²⁰

1.3 Public Administrators and e-services – and overlooked relationship

Many scholars have been occupied with the factuality of claims made by e-government advocates and the impact e-government has on the legitimacy, strategy, structure and policies of government. This thesis aims instead at shedding some light on another aspect of e-service implementation that has been overlooked in these efforts: the way the implementation of e-services have affected the work of the public administrators in charge of its day-to-day

¹² Belanche et al. (2014)

¹³ Tsai et al (2009) p. 368.

¹⁴ Heeks and Bailur (2009) p. 244.

¹⁵ Asgarkhani (2005).

¹⁶ Kampen and Snijders (2003), Lips (2013), Ranerup (2011).

¹⁷ Jansson and Whilborg (2012).

¹⁸ Moynihan (2004).

¹⁹ Grönlund (2010), Dawes (2008), Heeks and Bailur (2007), Yildiz (2007), Dixon (2010)

²⁰ Jansson and Lindgren (2012) p. 1

maintenance. E-services, like all public services, needs to be sustained by the workings of public organizations and its administrators. Since new technology gives rise to new modes of production which in turn produces new practices - it is not farfetched to assume that e-services will have far-reaching consequences for the routines and skill-sets of the civil servants involved.²¹ Within the redesign of public organization the public administrator is a central but seldom acknowledged group and yet these are the actors that are pivotal to the success of these new forms of citizen-government interaction.²² Pollitt (2011) recently showed in his studies of the English government that e-services implementation proved able to shift both the physical location of service provision and the tasks and abilities needed by civil servants to support the new system.²³

This thesis aims at answering how these shifts come about, and what the mechanisms are that help drive these changes. If e-services implementation provides the opportunity for increased efficiency of organizations, as stated by e-government literature, e-service implementation should also indicate an occasion for reformation of government work-process and practices to realize this potential. E-government literature is far from absent of descriptions of organizational change-models for the implementation of e-services.²⁴ However, as the lion share of e-government research is conducted with a top-down perspective on public organizations, what are left to be investigated are the bottom level mechanisms sparked by e-governance initiatives.²⁵ It is in this aspect this thesis is intended to make a contribution by studying the work of public administrators handling e-services at the Swedish Social Insurance Agency (SSIA), the Trollhättan Municipality, and the Swedish Tax Office (STO).

²¹ Giritli Nygren (2009) p.138ff

²² Marston (2006) p.84

²³ Pollitt (2011) 387ff.

²⁴ As an example of such work see Layne and Lee (2001)

²⁵ Grönlund (2010) p. 14-15

1.5 Aim, scope and research question

In the light of the conditions outlined this thesis poses three research questions: (1) *How have the public administrators work been affected by the onset of the new technology (e-service)*, and (2) *how has the public administrators been affected by organizational efforts to sustain the new technology (e-service)*. It also asks the question if (3) *either an explanation model from technology implementation based on planned and formal change, or incremental and informal change, better fits the empirical findings*.

Guided by literature on organizational change, processes and technology this thesis aims at mapping the work done by public administrators to develop processes needed to handle the implemented e-services, and to map the reformation of work-practices and roles following the onset of such new processes. These developments are studied by mapping the PA's notion and experiences of the onset of the e-service in two government agencies and one municipality. Since literature on organizational change brought on by technology offers different explanations on how work-processes are changed, this thesis also strives to bring some clarity on what model more accurately fits the descriptions of events outlined in the studied cases.

2. Theoretical framework

2.1 Organizational change - a note on planned or incremental change

Theorizing organizational change, traditional institutionalism has highlighted the persistence of the organizational structure, its 'stickiness'. Here organizations are depicted as enduring structures that only change through critical junctures - short periods of radical change where stability is substituted for change.²⁶ As such, traditional institutionalism expects 'path dependency' as the norm as increasing returns and rational choices makes keeping to the established track favorable for organizations.²⁷ According to this line of thought the structure of the organization is upheld by the adherence to formal structures, schedules and instructions that help guide the work conducted.²⁸ Akin to this line of reasoning the punctuated-equilibrium model proposed by Meyer et al (1993) puts forward the notion that the stability of the organizations are punctuated by episodes of rapid change instigated by a new technology, process change or deregulation.²⁹ Meyer and Roman (1977) writes that the organizational activities are changed as organizations conform to the myths of its surrounding to obtain legitimacy. Organizations are driven to implement practices and procedures that are defined by the prevailing conceptualization of what constitute the workings of rational, effective and productive organizations.³⁰ Weyland (2008) puts forward the notion that for change to happen there must be a need both in terms of demand, a perceived need for change inside the organization, and a supply of readily available new solutions to be implemented.³¹ DiMaggio and Powell (1983) explain this supply-side of organizational change as an organizational force-field in which other organizations exert normative and coercive influence on the organization. The formal demands from other organizations (annual reports), the informal arrangements from education the organizational actors receive and organizational uncertainties create conditions in which organizations tend to align with other organizations, creating homogeneity.³² This notion

²⁶ Andersson et al (2011) p. 56

²⁷ Weyland (2008) p. 282, Pollitt (2012) p. 40-41

²⁸ Eriksson-Zetterquist (2006)

²⁹ Meyers (1993) et al

³⁰ Meyer and Rowan (1977) p. 340

³¹ Weyland (2008) p. 312ff

³² DiMaggio and Powell (1983) p. 151ff

of change relies on *formal change*, as managers deliberately initiate change to seize opportunities to provide a better fit between their organization and its environment.³³ In the same fashion traditional organization theorists see organizations as discrete entities with structure, purpose and resources, steered by the management of the organization. The bureaucratic organizational structures are independent of the actors active in them, as actors are to adhere to the clearly defined spheres of action. Here, organizational change is conducted by *transforming* formal structure by documentation and decisions.³⁴

If however, organizations are instead viewed as consisting of a network of relations between organizational actors, as the author Czarniawska-Joerges (1988) and others have suggested, organizational change takes place in the social interplay between actors.³⁵ These changes are not necessarily radical, but rather *incremental*, developed in interplay between different actors in which different organizational rationalities becomes established.³⁶ Such a view of organizational change is instead *situated*, grounded in the everyday practice of organizational actors and the way they deal with their environment.³⁷ Giddens (1984) work on structures treats structure (organizations) as both a product of human action and a constraint on human action. He attempts to bridge the notion of structure as static with a notion of organizations as more dynamic enterprise. He denotes the institutional realm as the existing framework of rules and the realm of action as the actual arrangement of social actions in their daily work. Institutions are encoded in modalities; in schemes, resources and norms that affect how people interact with each other and in turn are influenced by people's interaction.³⁸

Lipsky (1980) coined the term "street-level bureaucrat" to refer to those civil servants that have direct contact with citizens. He argued that street-level bureaucrats are vital to the policy implementation as the techniques they use to provide services to the citizens in fact are a vital part of the policy itself.³⁹ He proposes that managers provide the restraints and bounds of civil

³³ Orlikowski (1996) p. 64

³⁴ In particular Lewins (1947) *freeze-unfreeze-refreeze* model is commonly used.

³⁵ Edwardson and Stiwe (1997) p. 17ff, Czarniawska-joerges (1988)

³⁶ Andersson et al (2011) p. 57

³⁷ Orlikowski (1996) p. 65

³⁸ Barley and Tolbert (1997) pp. 98-99

³⁹ Lipsky (1980)

servants; however scholarly effort should be devoted to the practice of these civil servants.⁴⁰ It is reasonably established that the actions of street-level bureaucrats differ from the policy set by higher-ups he argues, the implication being that if the governments want to improve the efforts should be concentrated on the ‘street-level’ interaction between citizens and the civil servant.⁴¹

2.2 Theoretical positioning of this thesis

The previous section on *change* serves to highlight two things: (1) change is perceived in organizational literature as either *incremental* or *planned*, and (2) change is perceived as sparked by the *formal* and purposeful change in structure, or by the change in the *informal* interaction between organizational actors that make up the organization. This provides a starting point to help structure the following chapters on technology and change. Rather than choosing one or the other, the rationale for the formal and planned as well as the informal and incremental will be presented, as they both help explain the changes public administrators face as e-services are implemented to support their everyday work (figure 2.1). This division is inspired by Habermas (1971) who proposes that a distinction between the realms of work (the purpose-rational action) and interaction (communication) is conducive to fruitful accounts and analysis of technology.⁴² Work is guided by rational principles he argues, while interaction is guided by reciprocal expectations about behavior.⁴³

⁴⁰ Rowe (2012) p. 15

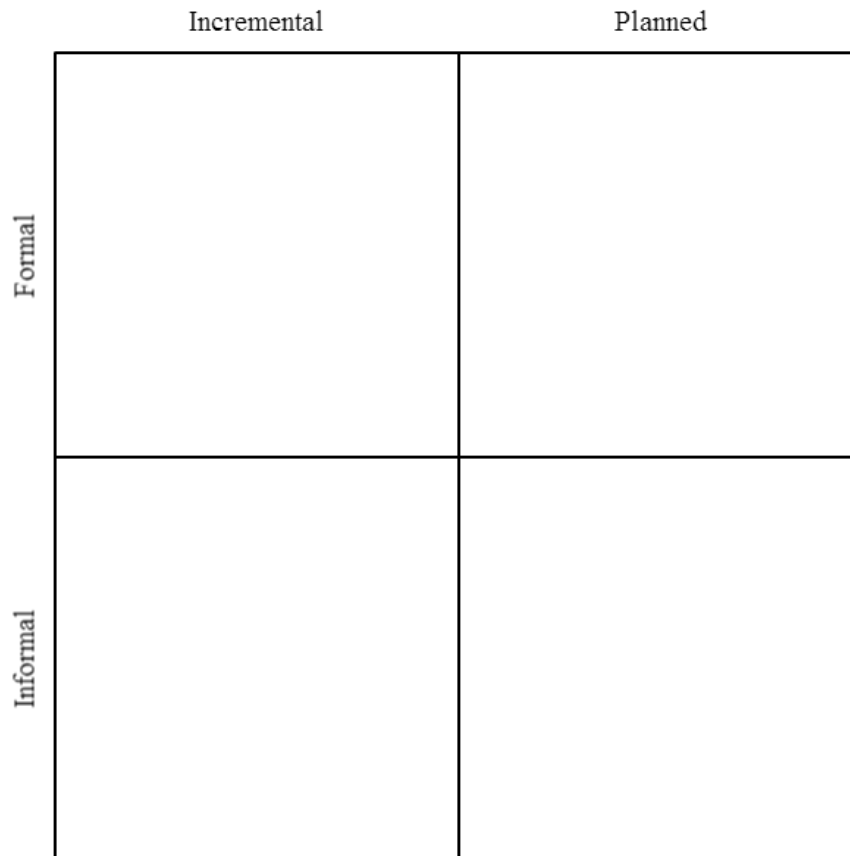
⁴¹ Winter (2009) p. 453, Landsbergen (2004) p. 24

⁴² Sikka (2011) p. 95, Månsson (2007) p. 322

⁴³ Note that while this thesis might be inspired this division to provide structure to the thesis, it doesn’t make use of further theorizing and normative constructs made by Habermas (1971) about the role of technology for societies development and modernity.

To help account for the changes experienced by PA in their experience of work, both the planned (formal) and the incremental (informal) changes needs to be accounted for. In the word of Orlikowski (1996) whose ideas will be prominent in later chapters: *“Where deliberate change is the realization of a new pattern of organizing precisely as originally intended, emergent change is the realization of a new pattern of organizing in the absence of explicit, a priori intentions.”*⁴⁴

Figure 2.1: Theoretical realms of organizational change used in this thesis



⁴⁴ Orlikowski (1996) p. 65

2.3 Formal and planned change from e-service implementation

As depicted in later chapter, a large body of research has been deployed to show how the informal interaction between the organizational actors and technology can have an effect on organizations. This thesis argues that however, that as technology implementation does not happen without formal decision, it is safe to assume that some sort of deliberative arrangement is designed to guide the public administrators ICT-work. In the following some of the forms of these deliberative arrangements are outlined.

The tasks and production processes have been the subject of research as early as 1911, when the work conducted by Taylor (1911) influenced the structure and specialization of organizations.⁴⁵ The research field of technology and organization was pioneered by Joan Woodward (1965) who while searching for the best way to organize found this to be related to the technology being used in production.⁴⁶ These early ‘contingency theorists’ deployed a rather head-on research approach, denoting technology (manufacturing process) as the dependent variable and organizational structure as the independent variables (such as span of control, centralization, departmentation).⁴⁷ The underlying assumption of contingency theorist thinking was *equifinality*: different structures are more or less well equipped to handle structural change, such as the implementation of a new technology. The contingency theorists sought to theorize the relationship between technology and organization so broadly that generalization could be made across organizational settings. Researchers following this line of thinking see technology as an exogenous and autonomous driver of institutional change and that it has predictable and measurable impacts on organizational outcomes.⁴⁸ Ultimately, contingency theorists envisioned that future scholars should be able to determine what cause-and-effect relations existed between technology and institutions existed in different contexts.⁴⁹ For many years, scholars interested in this line of inquiries would operationalize technology broadly as “work processes” and conduct macro-level research into the effect a change in technology would have on the formal structure of the

⁴⁵ Taylor (1911)

⁴⁶ Zetterquist *et al* (2011) p. 102ff, Woodward (1965)

⁴⁷ Eriksson-Zetterquist *et al* 2011 p. 60-61

⁴⁸ Orlikowski (2009) p. 129

⁴⁹ Orlikowski and Scott (2008) p. 445ff

organization.⁵⁰ In 1984, Zuboff studied the effects of work processes and tasks by information technologies, concluding that computerization will demand organizational changes and innovative forms of management.⁵¹ Albeit not too many theorists would label themselves contingency theorists today this research stream made a lasting impression by the way they conceptualized technology. As contingency theorists tended to formulate direct links between technology and structure they advocated a *deterministic* conceptualization of technology.⁵²

2.3.1 The importance of the “back-office”

As described in the introduction, e-optimists argue that ICT development will providing citizens with new ways of reciprocal interactions with governments and thus fundamentally transform relations between the governments and the governed. Empirical studies have shown however, that existing e-government initiatives mainly involve the delivery of information and services through the use of the Internet.⁵³ Fountain (2001) points out that the implementation of e-services might first take place in the ‘front-office’ of organizations; in the portals and web-pages in which citizens’ get in contact with government agencies to utilize services. These changes in the front-office will eventually lead to changes in the ‘back-offices’ of organizations he argues.⁵⁴ According to Fountain (2001) the implementation of e-services is not an easy and straightforward undertaking and cannot be accomplished in a swift manner. What needs to be in place is an integrative architecture for the e-service operability, which often involves changes in the organizational infrastructure.⁵⁵ Scholl *et al* (2012) argues that academic research on the implementation of e-services have mainly focused on the technical problems of e-service utilization, despite evidence that the need to overcome non-technical problems is important in the overall success of e-services. In their stakeholder analysis of successful intra and inter-government projects on integration, information sharing and ICT-interoperability, they found that the overall rationale behind such projects were internal service enhancement. The modernization of government (process-development) was not only the intended outcome of the

⁵⁰ Leonardi (2013) p. 26ff, Leonardi and Barley (2008) p. 162, Czarniawska (2009) pp.50

⁵¹ Zuboff (1984)

⁵² Barley (1990) p. 61

⁵³ Norris and Reddick (2013) p. 166ff

⁵⁴ Pollitt (2012) p. 25

⁵⁵ Ebrahim and Irani (2005) p. 591

project (e-service) but a prerequisite for the success of the same.⁵⁶ The alignment of primary-stakeholders needs and wants by adjustment of the administrative framework were often found necessary for the success of the project.⁵⁷

That the development of back-office processes is thought to be important to the improved delivery of e-services is highlighted by the explicit advice from large organizations.⁵⁸ The European Commission (2010) has put forward the notion, through the workings of the European Interoperability framework for European Public Services, that as a next step in the public service delivery is: *"splitting functionalities into basic public services with well-defined interfaces, designed to be reused, will simplify and streamline the implementation of aggregate services and the reuse of service components, avoiding duplication of work."*⁵⁹ This sort of normative recommendations for the handling of e-services comes from the fact that increasing public spending on information technology and e-government initiatives has put pressure on public administrators to evaluate the outcomes and interoperability efforts to help justify these investments.⁶⁰

2.3.2 Interoperability framework

Öhlund *et al* (2012) also point to the fact that the increased application of e-services has put interoperability to the focus of scholarly attention. Standardization has been put forward as important; however less focus has been put on other factors, such as stakeholder involvement. He argues that since interoperability refers to the integration of all the processes concerned with the e-service, more interest should be divided to the people, systems, procedures and organizations that sustain operability.⁶¹

Various definitions of interoperability involve different perspectives on interpretation: some definitions focus on the technical ability of systems to operate while others focus on interoperability on the organizational level. Albeit all of them are important for the overall

⁵⁶ Scholl *et al* (2012)p. 315

⁵⁷ Scholl *et al* (2012)p. 320

⁵⁸ Sveriges Kommuner och Landsting (2011), Regeringskansliet (2013)

⁵⁹ European Commission (2010) p. 13

⁶⁰ Scholl *et al* (2012) p. 313

⁶¹ Öhlund *et al* (2012)

interoperability of e-services and thus its success, this thesis is occupied on the civil servant level and thus the organizational operability: how different organizational processes and information exchange are integrated and managed.⁶² Problems with administrative and operational interoperability, with conflicting and overlapping tasks and competencies as well as an absence of integral and unambiguous responsibilities are often presented as an obstacle for successful e-services.⁶³ Thus organizational operability:” (...) *is concerned with the ability of two or more units to provide services to and accept services from other units, and to use the services so exchanged to enable them to operate effectively together.*”⁶⁴

2.3.3 Business Process Re-modeling

The previous sections have outlined arguments for back-office organizational efforts to provide more efficient e-services. Agreeing that public administrations need to make planned actions to sustain the e-service, in effect changing the way choose to organize. In this section the details of one such planned effort is outlined: Business Process Re-modeling (BPR). Before the arguments of the BPR movement is detailed in this section it is important to point out that the vehicle of organizational change to support e-services does not necessarily have to be BPR, but can be any sort of deliberate remodeling of the work-flow-processes inspired by the private sector with labels derived from the new public Management paradigm. As an example Zdjelar (2012) makes use of the Balanced Score Card (BSC) as vehicle of restructuring to support e-initiatives and the same has been done with Total Quality Management (TQM) and Lean-manufacturing.⁶⁵ The term 'process' as it is used in this thesis should be understood as any strategy to explicitly map the core responsibilities and tasks involved in e-service deployment visually and willingly make use of such structuring in everyday work routines. BPR however, is selected as a theoretical grounding for this chapter on process as it is most accurately fits the empirical patterns discovered in the case-studies (see chapter 4.2 on abduction).

⁶² Öhlund et al (2012)

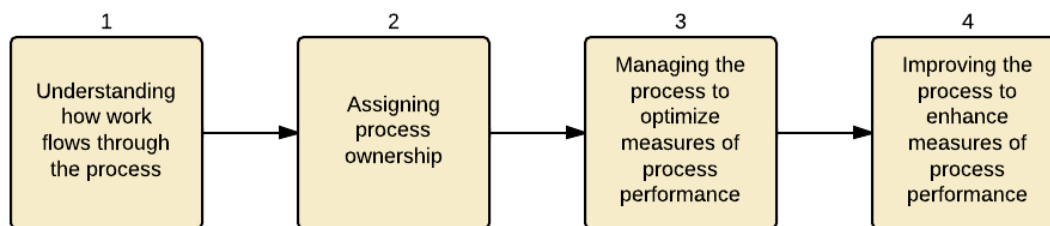
⁶³ Bekkers (2005)

⁶⁴ Gottschalk (2009) p. 76

⁶⁵ Zdjelar (2012), Janssen and Estevez (2013)

Hammer and Champy (1993) introduced the idea that processes over time gets rigid and loses its productive purposes. To become more productive organizations should reinvent themselves by re-engineering their organizations by recreating processes from scratch, focusing on customer satisfaction.⁶⁶ The idea of process management can be traced back to the 1980's and is a core element of TQM. The idea is that it is essential for organizational enhancement to focus on the process - the value creating flow, by highlighting the practical implementation of activities. By 'process mapping' the work processes are identified and exposed in a visualization of how the process cuts across different functional units. The idea is that this visualization helps to reduce work duplications and waiting times, thus making the process more effective. To sustain the process new roles are established with responsibility of certain processes: "process owners."⁶⁷ In their study of the BPR in the public sector, Gullledge *et al* (2002) presents the four steps in the BPR-approach (figure 2.3), while they are supportive of the approach claimed benefits they are skeptical to the success-rate of these approach in the public sector, as public agencies are unwilling to give up their hierarchal organizational structure, a prerequisite for BPR.⁶⁸

Figure 2.3: The steps in the Business Process Re-modeling



The steps in the BPR-approach described by Gullledge et al (2002)

⁶⁶ Hammer and Champy (1993)

⁶⁷ Quist and Hellström (2012) p. 902.

⁶⁸ Gullledge *et al* (2002) p. 364

Macintyre and Bestwick (2012) provides an example of such process re-modeling in the application of lean within NHS primary care. The mapping shows that considerable time is spent on over-lapping or 'non value-adding' work. Through the standardization of tasks, opportunities for waste reduction were identified. In the end the health-care workers failed to see the relationship between process and efficiency the authors argue, and the opportunity for better efficiency was lost.⁶⁹

2.3.4 Transformative government

Weerakkody *et al* (2011) argues that while the early stages of e-government focused on enabling customer-facing services it is suggested that the later stages of this provision will lead to a more transformational change in public sector agencies. In the UK this hope is dubbed T-government - Transformational Government. The bottom line is that to utilize the promises of e-government, the core processes of the public sector will need to change.⁷⁰ To achieve the benefits of e-government public agencies will need to actively co-ordinate and re-align through the integration of processes and ICT-systems.⁷¹ In their study of this proposed second-phase of e-government in the Netherlands and the UK, they track these developments in two local governments. They found that these municipalities were re-modeled processes around key services that fit citizen needs, by using process re-modeling and ICT-implementation. This integration between front-office and back-office activities as well as across organizational boundaries was accomplished by the goal of delivering joint-up and citizen-centric services.⁷² The radical change deployed by the re-structuring of processes was followed by incremental improvements to the service provision by the reciprocal interplay between social, technical, organizational systems; however the author's emphasis that process redesign is key as changes need to be transformative in nature to succeed.⁷³

⁶⁹ Macintyre and Bestwick (2012) p. 96ff

⁷⁰ Weerakkody, *et al* (2011) p. 320

⁷¹ Weerakkody, *et al* (2011) p. 322

⁷² Weerakkody *et al* (2011) p. 326.

⁷³ Weerakkody *et al* (2011) p. 327.

2.3.4 Summary – formal and planned change from e-service implementation

Back-office

- Implementation may first happen in the front office but will eventually provide pressure for back-office development (Fountain)
- Too much emphasize has been devoted to technical problems with e-service implementation instead of organizational structure (Scholl et al)

Interoperability

- interoperability is important for e-service success and is in part an organizational effort (Öhlund et al)
- Problems from conflicting and overlapping tasks and competencies and responsibilities is an obstacle for e-service success

Business process re-modeling

- BPR are one of many Quality management regimes that focuses on explicitly mapping processes
- Processes gets rigid over time and loses its productive purposes (Hammer and Champy 1993)
- Process management is a part of the Total Quality Regime
- Visualization help reduce work duplication and waiting time (Quist and Hellström 2012)

Planned government

- To utilize the promises of e-government the core process of government needs to change (Weerakkody et al)

2.4 Informal and incremental change from technology implementation

Research conducted to establish how the onset of new technology changes the conditions of the organizational actor's points to the fact that technological changes might have different effects depending on the technology itself, the service provided and organizational policies.⁷⁴ By the onset of new technology, jobs may become more or less skilled and flexibility might be gained or lost, and it seems difficult to predict in what ways employees will be affected. Furthermore, the effect of the technology for the employees is mitigated by social preferences, political concerns and technical and social contingencies.⁷⁵ Frenkel *et al* (1998) studies on call center shows that it's hard to make deterministic assumptions in the line of *de-skilling* or *up-skilling* of professionals from new technology, as both effects were present in their study and in complex ways.⁷⁶ De-skilling theory stems from marxist theory and argues that institutional arrangements constrain the design, selection and implementation of new technology. These theorists argue that capitalist technologies and institutions will favor managerial control and the separation of manual and conceptual work and therefore the technologies that are most likely to be implemented are those that deskill labor and promote automation.⁷⁷ Such assumptions of the changing nature of work by consequence of new technology however, seems to get little support in empirical studies, especially in regards to Information and Communication Technology (ICT).

2.4.1 Roles and interaction

A prominent contributor to the field, Stephen Barley (1990) has provided influential work on how technology has the power to transform organizational structures by altering structural roles and interactions. By outlining the process of implementation of Computerized Tomography Scanners (CT-Scanners) in two radiology departments, Barley show that identical technologies introduced in similar contexts can initiate similar responses but different structural outcomes thus highlighting the importance of context and the social meaning attributed to the technology.⁷⁸ The incremental change brought on by the new technology changed the social organization; the older radiologists became compartmented as newer radiologists with better understanding of the new

⁷⁴ Gritli Nygren (2009) p. 139ff

⁷⁵ Gritli Nygren (2012) p.617

⁷⁶ Frenkel *et al* (1998) p. 974,)

⁷⁷ Barley (1990) p. 62

⁷⁸ Barley (1986) p. 81ff

technology formed new modalities. The new technology also changed the role and nature of interaction between radiologists and technicians, making the technician's role more important.⁷⁹

In their longitudinal study, Eriksson-Zetterquist *et al* (2009) mapped the effects of an introduction of an e-business system in the purchasing department of a major Swedish automobile manufacturer following its acquisition by an American car-producer. Their study shows how the adoption the ICT-system was accompanied by changes in work procedures and organization in order to sustain it. The professional identity previously enjoyed by purchasers as independent and highly autonomous agents in the organizational structure were downplayed in favor of a work description that put more emphasis on automation. The introduction of the ICT-framework also led to expanded forms of accountability, monitoring and control. As the existing process was not compatible with the work-order inscribed in the ICT-system, it changed the purchasing process accordingly. New roles were established according to the workers involvement with the new system, which reflected the more hierarchical structure of the American car-producer.⁸⁰

In a study of the introduction of Electronic Prescription Service (EPS) for UK community pharmacist's providers, Petrakaki *et al* (2012) outlines the effects for pharmacists in terms of re-, and de-professionalization. Their research shows that the EPS blurred the boundaries of responsibilities between doctors and pharmacist as well as interpersonal trust. They also argue that the system had the possibility of altering the nature of the pharmacists work, leading to more automation and thus changing some of the core-values of the profession. On the other hand, with the aid of the new system pharmacists were also presented with the possibility to expand their professional identities, have a larger say and to become a more integral player of the National Health Service (NHS).⁸¹

As these studies show, the implementation of new technology is very well capable of changing the routines, roles and tasks of the people involved Either through the alignment to the

⁷⁹ Barley (1990) p.91ff

⁸⁰ Eriksson-Zetterquist *et al* (2009)

⁸¹ Petrakaki *et al.* (2012)

constraints the technology poses or by creating new roles and processes in respect to the technology. Another thing apparent in this section is that change seems to be contingent on the properties of the technology and the actions of the actors involved. The next sections will outline the particular theoretical frameworks deployed in this thesis that will help frame this relationship in the later case studies.

2.4.2. Mechanisms of incremental change

From a distance a study of the link between technology and organization seems like a pretty straightforward ordeal. If one is to study the implementation of a new technology in an organization and then map the ensuing changes surely any meaningful patterns of organizational change will emerge? This is in fact fair description of how most studies of technology and organizational change are conducted. However, a lot of scholarly effort however has been poured into examining just how technology affects organizational humans. *What* is technology? *How* should it be defined and what intrinsic qualities do it carries? And the most pressing question of all perhaps: how is the social changed by the material?⁸² These are not just question that can be shrugged off as over-theorizing the effort of this thesis, but are important to its endeavors. However, as the field is characterized by an increasing amount of complexity it if worth noting that the rationale for presenting this section is to retain analytical tools to examine the empirical case-studies, as such some of the more detailed ontological and conceptual discussion of the intrinsic qualities of technology is not presented.⁸³

2.4.3 Perceptions of technology

A central author to the study of how new technology provides opportunity for organizational change, mention in the previous chapter Barley (2001) argues that the study of new organizational forms and change should focus on the aspects of work, since it lies at the very heart of organizations. Barley has in his academic career related organizational change with changes in work-related roles and tasks: *"Since work and organization is so interdependent, a*

⁸² Leonardi and Barley (2008) p.159ff.

⁸³ see section 8.4 in the appendix for a discussion on sociomateriality.

widespread change in the nature of work in society should lead to the emergence and diffusion of new organizational forms and institutions."⁸⁴

Barley (2001) puts forward the notion that the boundaries (between professional roles) are social constructions created by the spatial location, identification, patterns of interaction, and legal definitions of social actors. To determine whether these boundaries have changed due to the onset of new technology, understanding how social agents perceive and conceptualize their identities is thus cornerstone in empirical research on organizational change triggered by new technology.⁸⁵ The way technology is defined and what inherent characteristics are given to technology also influences the way research on technology is conducted and it thus central to any such efforts. Barley argued that technology might not be *determinants* for structural change but rather the implementation of new technology were *occasions* for actors to re-evaluate their roles and the structure in which they were a part. As he argued that as organizations are made up by human agency, any shift in this agency should have an aggregated effect on organizations. In turn, micro-social dynamics triggered by new technologies change the relational social role, which affects the organizations social structure.⁸⁶ Following this logic an adequate understanding of how technology and organizational roles are related require attention to social dynamics and human action. From the macro-level it's true that existing traditions and ideologies influences the way organizations and technologies are designed however all technologies can have intended as well unintended consequences on the micro-level.⁸⁷ Barley asserts that the technology is material trigger of social dynamics as it allows *slippage* in established social dynamics. In the case of the CT-scanners this implementation led to a slippage in the social dynamics between radiologists and technicians, over time these slippages in the social fabric will stabilize and taken for granted. Technology should be understood as a social object whose meaning is defined by its use; however the physical form remains fixed across time and contexts of use.⁸⁸

⁸⁴ Barley (2001) p. 76

⁸⁵ Barley (2001) p.78

⁸⁶ Barley (1990) p. 61

⁸⁷ Orlikowski (1992) p.402

⁸⁸ Barley (1990) p. 62ff, Barley (1986) p. 80

2.4.4 Mutually dependent assemblages

A hallmark thinker on technology and organization Wanda Orlikowski (1992) suggests that there are no deliberative instigated changes and technical inevitability; change is instead the reciprocal, continuous and recurrent variations in practice.⁸⁹ The core of Orlikowski's thinking is the way she makes use of the structuration model introduced by Giddens (1984) (section 2.1). Orlikowski explains that there is a *duality of technology*: technology as an artifact is constructed by human actions, but technology also contains a structuration capability that over time changed the organizations in which the actors and the technology is embedded.⁹⁰ Here the "*technology-in-use*" is in itself the micro-level the mechanism that aggregates into the organizational structure and technology is thus placed central to the organizational process.⁹¹ Orlikowski (2000) further developed these conceptualizations when she constructed a practice lens for studying technology in organizations.⁹² In the development of the practice lens the "technology-in-practice", the "particular structure of technology use" was transformed into more abstract forms of social structures: centralization, group norms, legitimization, domination, and signification. Orlikowski argued that certain patterns of technology-in-use aggregates into technologies-in-practice as people formed interpretations in their practice of how the technology's features allowed them to accomplish tasks and social interactions. The structures of technology are shaped by the recursive action by the human agents, as they interact with the properties of the technology they shape the resources and rules in which this interaction can occur.

Through her investigation on the introduction of technology in organizations she particularly looked at how people, technology, and organizations interact. The structure of the technology is observed in the emergent-process of interaction between social agents, thus this structure of technology is *emergent*.⁹³ In longitudinal empirical work in a support department of a software company she showed that by subtle and incremental changes after IT-technology implementation the nature of work was changed from unstructured to structured, the distribution of work was

⁸⁹ Orlikowski (1996) p. 66

⁹⁰ Leonardi (forthcoming) p. 10

⁹¹ Orlikowski (1992)

⁹² Orlikowski (2000)

⁹³ Orlikowski (2000) p. 406ff.

changed to more expertise-based, and the evaluation of performance was shifted from output-based-only to more focused on process.⁹⁴

2.4.5 Materiality

Czarnaiwska (2009) suggest that technologies can be conceived as carriers of institutional patterns of control. Technical artifacts can be seen as institutions engraved, or *inscribed* in matter and thus carrying of institutional control. Organizing actions are thus externalized to technology as they continuously exert control and this control is in fact removed from everyday awareness.⁹⁵ Note, that this notion if inscribed structure, ‘the code’ of the technology is different from the notion proposed by Orlikowski (2000) in which the structure of the technology is emergent and made evident by the use of technology. This is not an unimportant distinction, since the ‘materiality’ of technology lies at the very heart of the study of the effects of technology on organizational actors.

Kallinikos (2009) proposes that it is not sufficient just to determine that the affordance of technical artifacts is negotiated in the social context in which it is embedded. Taking the research done by Orlikowski in consideration it seems clear that the design and character of the technological artifact do not dictate the way the artifact is used, only social negotiation can determine that. Kallinikos (2009) proposes instead that artifacts, in fact, carriers a certain form of materiality in that its features certain affordances and constraints that are not completely malleable by the user.⁹⁶ He argues, that an investigation into the transformative force of a new technology on its organizational user’s needs to acknowledge that technology enforces an regulative regime in that its functionalities enforces certain courses of action available to the user, as well as shape the perception of which actions that are plausible and acceptable. Thus, the materiality of technological artifact is important and needs to be properly described.⁹⁷ Drawing on Luhmann (1993), Kallinikos (2005) proposes that materiality of technology impacts the use

⁹⁴ Orlikowski (1996) p. 89

⁹⁵ Czarniawska (2009) p. 52ff

⁹⁶ Kallinikos (2009) p. 68ff

⁹⁷ Kallinikos (2009) p. 70, Kallinikos (2004) p. 9ff

by means of functional simplification: its use is cleared from ambiguities as it carefully prescribed what, and in what order, procedures must be conducted to accomplish certain tasks.⁹⁸

2.4.6 Summary - Informal and incremental change from technology implementation

- Jobs may be de-skilled or up-skilled by new technology (Frenkel et al)

Roles and interaction

- Technology has the power to transform organizational structures by altering roles and interactions (Barley)
- Identical technology may trigger different structural outcomes in different contexts (barley)
- Professional roles may be changed by technology implementation (barley)
- Work procedures and organizations may be changed to sustain the rationale of the new technology (Eriksson-Zetterquist et al)
- Professional identities expanded and core-values of the profession changed by technology (Petrakaki et al)

Perceptions of technology

- Boundaries between professional roles social constructs (barley)
- To understand how social agents perceive their identities is cornerstone to understand how these identities are changed by technology (Barley)
- New technology is occasions for actors to reevaluate their roles (barley)
- all technologies can intended as well as unintended consequences on the micro-level
- Technologies allow for slippage in the social dynamics (barley)

Mutually dependent assemblages

- Change is reciprocal, continuous and recurrent variations in practice (Orlikowski)

⁹⁸ Kallinikos (2005) p. 189ff, Luhmann (1993)

- Duality of technology- technology is an artifact constructed by human actions but also contains a structurational capacity (Orlikowski)
- The structure of technology-use is with time transformed into centralization, group norms, legitimization, domination, and signification (Orlikowski)

Materiality

- Technical artifacts can be seen as institutions inscribed in matter that continuously exerts control (Czarnaiwska)
- Organizing actions are thus externalized to technology as they continuously exert control and this control is in fact removed from everyday awareness (Czarnaiwska)
- Artifacts a carriers of certain forms of materiality in that its features certain affordances and constraints that are not completely malleable by the user. (Kallinikos)
- Materiality of technology impacts the use by means of functional simplification: its use is cleared from ambiguities as it carefully prescribed what, and in what order, procedures must be conducted to accomplish certain tasks (Kallinikos)

4. Methodology

This chapter details the methodological choices of this thesis' and discusses the procedure in which the empirical data has been collected to help answer the thesis research questions. Since the aim of this thesis is to provide some insight into "back-office" developments in the wake of e-service deployment, it basis its inquires on an open-ended method to collect as much data as possible. Further, as the theoretical framework advanced in the previous chapters is a pivotal part of the thesis, the research approach taken is abduction - a mixture between inductive and deductive methods. This thesis further rests on a critical realist positioning as a premise.

4.1 Critical realism

A couple of words should be said about the research philosophical footing of this thesis, without going into a lengthy account that might deter the reader. Instead of positioning itself in respect to the positivist or constructivist traditions, this thesis is conducted in the critical realist tradition.⁹⁹ The critical realist tradition acknowledges that an entity can exist independent of its identification meaning that it can exist without being constructed by someone (differing from the socio-constructivist odontological positioning in which the construct is key).¹⁰⁰ Unlike naive realism however, critical realist accept that it is impossible to make theory-neutral observations (as claimed by positivists) as observations are always mediated by the conceptual resources of the observer. According to this research tradition any entity that has causal efficacy is real, meaning that any entity, either material (administrative It-system) or in-material (process) is real as long as it affects people's actions.¹⁰¹ The real is interpreted in different ways but unless we are willing to accept any interpretation to be as good as the other we have to accept that there are limits to interpretation. A violin, in an example of this line of thought provided by Fleetwood (2005), can be used as a music instrument but also as a table-tennis bat, if all interpretations are seen as equal we must except the interpretation of a violin as a table tennis-bat as valid. If not, we must admit that there are limits to interpretation, limits that are established by the materiality

⁹⁹ Note that the positivist/constructivist debate has been a driver in the concept development of the effects of new technology for organisational actors (see section 2.4).

¹⁰⁰ Fleetwood (2005) p. 198ff

¹⁰¹ Fleetwood (2005) p. 199

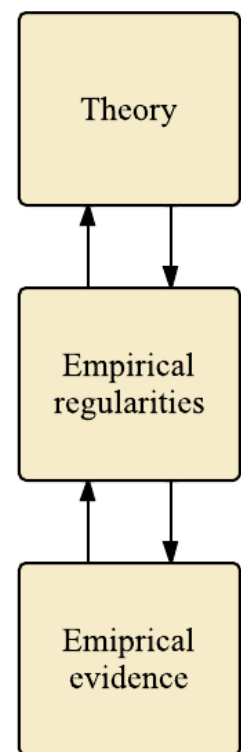
of the entity.¹⁰² The critical realist positioning of this thesis that not all phenomena's are constructed is not to say that the findings of this thesis is fit for generalizability or have any sort of universal claim. The entities described in the thesis is mediated by the respondents: the description of changes in work process of the dental-insurance department of the SSIA following e-services implementation is not true for all 'processes' that are adopted in after e-service adoption.

The notion that the real is mediated by the conceptual resources of the observer is of course also true for the researcher. The analytical efforts of this thesis are mediated by the interpretation of the material by the researcher and as such the analytical method should be explicitly stated as to avoid confusion and problems with validity.

4.2 Abduction

The comprehension of the empirical material in this thesis is based on abduction, an approach based on the empirical foundations of induction but without denying the theoretical notions of deduction. The case studies are here interpreted with the aid of relevant studies and theoretical undertakings, and the empirical results interpreted with relevant studies. The hope is that during this process the empirical basis of interpretation is expanded as well as the theory adjusted with help of the empirical findings. Abduction basis its findings on empirical facts like induction however it doesn't exclude theoretical pre-understandings. In this thesis the empirical undertakings is therefore grounded with studies of past theoretical undertakings into the subject but this is done to gather paths and understanding of the subject not to be applied onto the case-subject at hand. It is not hard to see why this is a favorable positioning for the scope of this thesis. Given the many branches of the e-service phenomena as well as the technology in the public sector there are simple is no encompassing theoretical framework in which the e-service

Figure 4.1 Abduction:
Relation between theory
and empirical evidence



¹⁰² Fleetwood (2005) p. 201

deployments of the cases described can be subjected and studied. Thus, the theory is presented to gain understanding of the phenomena, and the empirical evidence is presented to help validate and adjust the theory in a process in which both are reinterpreted. In effect the abduction method recommends using theoretical and existing framework to unearth deeper patterns that if they are valid will make empirical patterns comprehensible (figure 4.1).¹⁰³

4.3 Case studies strategy

In order to understand the back-office changes from e-service implementation I have constructed three cases. The case-study approach lends itself well with the overall aim of the thesis, and the theoretical underpinnings of abduction and critical realism as it allows the researcher to collect and analyze a rich set of empirical data from a single source. The aim of this thesis is to advance the theoretical constructs available on how e-services affect PA's work processes, not to make generalizable connections from this source-matter. As such, case studies provide the necessary in-depth data-collection.

4.3 Selection of cases

Three cases were selected for analysis: the Swedish Tax Office (STO), the Dental Insurance office of the Swedish Social Insurance Agency (SSIA), as well as the Trollhättan municipality. Based on Patton (2002) a mixed purposeful sampling approach was chosen for the selection of cases, the selected methods being criterion sampling, and intensity sampling.¹⁰⁴ The criterion here being a (1) well-established public body responsible for providing services to the public that (2) have experienced e-service implementation in the not for distant past. The Intensity provided by the selected organizations is the way the organizations divert in there make-up and responsibilities to the public. The SSIA, STO and Trollhättan municipality are all public agencies however their responsibilities differ. This allows for diverting view-point and gathered and analyzed.

¹⁰³ Alvesson and Sköldberg (1994) p. 42

¹⁰⁴ Patton (2002) p. 243

The cases were also selected on the notion that the SSIA, STO and Trollhättan Municipality (in the aspect of being a municipality) together represents some of the most common forms of interactions between citizen and government – retrieving benefits, paying taxes, connecting with local government – and thus citizen and PA interaction. Given the importance of service-quality on the citizen's attitude towards its government previously outlined, the hope of the author is that findings in these core-activities of government will be instructive to research endeavors on e-service adoption in other parts of the government-citizens relation.¹⁰⁵

A major drawback in the case of Trollhättan municipality is that the e-services and the corresponding changes in process are yet to be implemented; the views expressed in the interviews are thus speculation of the coming changes, which is far from optimal condition in terms of validity.

4.4 Interviews

Semi-structured interviews were conducted to gather data for analysis. Hence, the foundation of the constructed cases is the respondents own description and experience of their work tasks and processes. Given the analytical framework this is perhaps the most important data available on the changes in work-procedure and processes the PA's experiences in the wake of e-service implementation. Data collected from interviews are a creation of the context in which they are gathered, and lack the ability to be reproduced and thus validated in another setting. Despite of these drawbacks, interviews also provide a natural and rich source of information.¹⁰⁶ Given the nature of the subject at hand, it is also the only available method to gather the data, since the author lacked an opportunity to witness and track the e-service implementation first hand. That being said, documentation in the form of in-house documents, reports and interface descriptions were also analyzed.

With support in the theoretical framework a set of 26 questions were selected. The questions have been answered by the respondents in no particular order, but with enough adherence to the

¹⁰⁵ Again, this is not the same as to say that the findings can be generalized to other agencies.

¹⁰⁶ Alvesson and Deetz (2000) p. 216

framework to allow all questions to be answered satisfactory (see appendix 8.3 for interview guide). In light of the complex and contextual nature of the phenomena of work-processes this method were selected in favor of questionnaires, as to provide the interviewees ample opportunities to elaborate on their answers and provide new insights that could not be anticipated beforehand.¹⁰⁷ Another reason for why interviews were deemed favorable to questionnaires was that the since the interviewees own sense-making and knowledge was in focus of the thesis, and its theoretical construct, the respondents own categories and perceptions for entailing their experiences were an important part in structuring the gathered data in the analytic phase.¹⁰⁸

4.5 Respondents

Respondents were selected on the basis inside knowledge and experience with working with the e-services and the corresponding work processes. Following a “snow-ball” approach to selection, often a senior staff member first to be interviewed were able to pin-point other members of the organization that could interest to the study. The respondents were also selected based on the criteria that they conducted work before and after the implementation of the e-service and could provide first-hand accounts of how work were conducted prior to the e-service which was vital for the purpose of the thesis. The interviewees therefore acted both as informants in their capacity of information holders of past experiences with the work-processes, and respondents in that they could give a detailed description of current practices.¹⁰⁹ A major drawback from these accounts of how work was conducted is that memories might be distorted with time, as such a cautious note should be made that the accounts of past experiences in the work environment, a better approach would have been able to observe the work processes and procedures before and after the onset of the e-service in a longitudinal case-study. Given the limited time presented for the purpose of this thesis however, this was not a possibility. One cautionary note should be made about the a problem of validity that might stem from the fact the interviews are conducted in Swedish, however the thesis is written in English, as quotes are used as a foundation for the cases provided, there is a possibility that the translations of the quotes might not make complete

¹⁰⁷Essaiasson (2007) p. 284

¹⁰⁸ Alvesson & Deetz (2000) p. 82

¹⁰⁹Essaiasson (2007) p. 284ff

justice to the opinions of the respondent. Great care has been taken however, to stay true to the respondents own descriptions in the translation as to limit the severity of this problem.

All in all eleven interviews were conducted; four in the dentist department of the SSIA, two in the municipality of Trollhättan and five at the STO. The interviews lasted approximately an hour each and were recorded on iPhone recording applications and voice recording software on a laptop computer. One interviewee declined being recorded and notes were instead taken, another interviewee made at the STO was aborted as the interviewee had no experience with handling the e-service and couldn't provide data for the thesis. The interviews were conducted with PA directly affected by the e-service in their daily work, however in Trollhättan an interview was also conducted with the business developer since this person had knowledge about the process needs of this organization. In addition to the interviews, observational studies were conducted of work procedures and administrative systems and in-house documents studied (see table – in appendix). In the instance of STO in-house documents could not be studied due to legal issues.

5. Empirical findings – Case-studies

5.1 Case 1: The dentist department of the Swedish Social Insurance Agency

The Swedish Social Insurance Agency (SSIA) (Försäkringskassan) is a central part of the Swedish welfare model and is responsible for yearly payments to its beneficiaries of 200 billion SEK, the equivalent of six percent of the Swedish GDP 2013.¹¹⁰ As of 2012 it had 12 900 employees.¹¹¹ The SSIA is commissioned by the government to investigate, determine and distribute claims to the national social insurance by families with children, the ill and people with disabilities, as well as to administer other allowances.¹¹²

5.1.1 The organization of the SSIA

During a ten year period starting from 2000 the SSIA have gone through a face of large reformations. Going from being organized around the physical location of offices, working with the generalist notion that PAs should be able to deal with a universal set of processes and tasks, the SSIA have sought to streamline its organization through the process of specialization, concentrating certain insurance claims to certain offices.¹¹³ This geographical decoupling also sought to limit the contact between the PA and the insurance beneficiary, limiting the chance of a too favorable verdict on insurance claims. The reformation also sought to make the organization more standardized in its assessments and deal with what was perceived as low levels of efficiency. The geographical organization of the SSIA was abolished in favor of reorganization in three channels for handling beneficiaries: “National Insurance Centers” (NIC), “Local Insurance Centers” (LIC) and “Customer service/Self-service” (figure 5.1). The NIC is to specialize in one type of insurance claim in particular although they can sometimes handle 4-5 different insurance claims. Decoupled from the insurance-claimer the PA working there cannot

¹¹⁰ Försäkringskassan (2013) p. 4

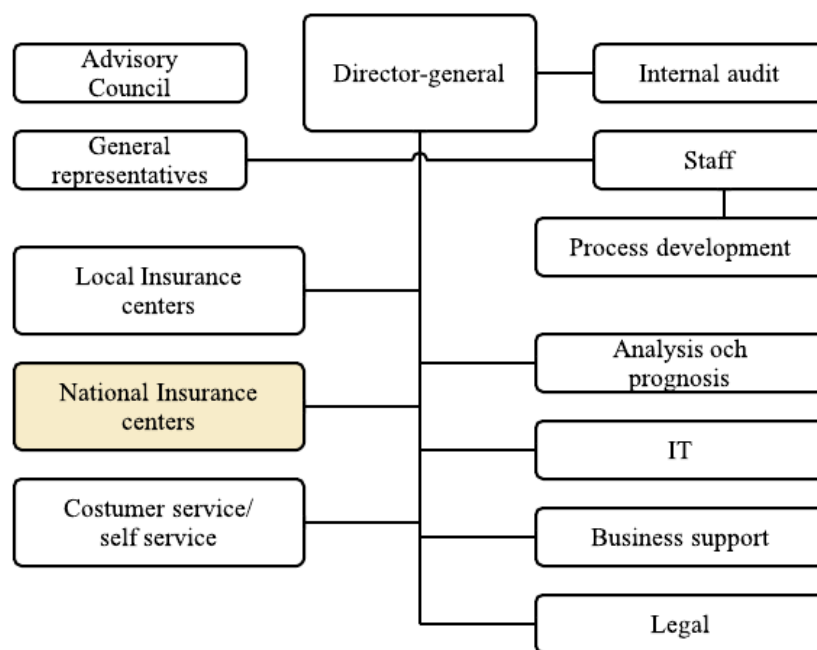
¹¹¹ Andersson et al (2011) p. 54

¹¹² Försäkringskassan (2013)

¹¹³ Andersson et al (2011) p. 58ff

be reached on telephone, mail or by e-mail.¹¹⁴ The LIC is concerned with providing the benefits to the insurance-claimer, communicating the decisions made, transfer benefits and other service vis-a-vis the beneficiary.¹¹⁵ Costumer service deals with costumer contact on phone or e-mail.¹¹⁶ The reformation also led to the development of processes for various insurance claims called “ENSA-processes”, further tightening control and standardization of the agency. The SSIA has put a lot of time and effort on developing these processes with detailed descriptions of prescribed handling-times for various insurance processes.¹¹⁷

Figure 5.1: The positioning of National Insurance Centers (NIC) inside the organization set-up of the SSIA.



Organizational schematics of the SSIA.¹¹⁸

¹¹⁴ Statskontoret (2008) p. 30

¹¹⁵ Statskontoret (2008) p. 30ff

¹¹⁶ Statskontoret (2008) p. 31

¹¹⁷ Andersson et al (2011) p. 61

¹¹⁸ Försäkringskassan (2013)

5.1.3 ENSA processes

As a part of the reformation process of the SSIA, ENSA-processes were implemented to achieve better standardization of the way cases were handled. These processes were developed by the director general in Stockholm and implemented during 2008. The response was initially positive from the PA's, however no outside consultant has yet evaluated their effectiveness. These ENSA-processes have designated lead-times for the average handling-time for different cases. The ENSA-processes are an aid in instructing the PA's work, however the processes are not integrated in the administrative interface as the overall aim of the processes being standardization and not efficiency gain.¹¹⁹

5.1.4 Background for e-service implementation: The dental reform of 2008

As of the first of July 2008 a new law (2008:145) restricting the government subvention of dental-care was implemented.¹²⁰ It had the overall aim of providing incentive for persons with small or no dental need to sustain their dental health. This was done by providing initiatives for these people to seek out dental care by making sure they could obtain this service to a reasonable cost and that people with grave dental need were able to get their needs taken care of to a reasonable cost by providing a cost ceiling.¹²¹ Prior to the reform, persons over the age of 65 could have 100 percent of the cost of a dental procedure reimbursed, with the condition that these procedures were approved by the SSIA beforehand. For all other patients, 30 percent of the cost of procedures except examinations and prosthesis were deducted from the price at the dentist office and reimbursed to the dentist by the SSIA retroactively.¹²²

The new dental insurance law was to be sustained through the cooperation between dentists, the SSIA and the pharmaceutical benefits agency (DPB). The dentists are to rapport the procedures they have administered, the SSIA is responsible for the reimbursement to the dentist according to the dental insurance law, to control that the reported sum is correct, and to inform the public of the benefits they are entitled to. The DPB is responsible is to determine a reference price for each

¹¹⁹ Statskontoret (2010) p.19ff

¹²⁰ Statskontoret (2008) p .79

¹²¹ Riksrevisionen (2012) p. 15

¹²² Riksrevisionen (2012) p. 25

procedure in accordance to which the dentist will be reimbursed.¹²³ The reform abolished the need for beforehand approval of procedures (for patients above 65 years of age) but instead introduced the requirement that all procedures could be subjected to ex-post examination.

Even if not explicitly stated in the new law, this reformation introduced a need for a system that could administer and control such ex-post examinations, a system that will be described in the following.

5.1.5 Materiality of the e-service

The implemented e-service consists of: (1) the administrative IT-system required by dentists to collect claims to insurance money, (2) the administrative system used by PA's at the SSIA, and (3) the linkage between the two systems allowing the automatic reimbursements of insurance claims to the dentists (figure 5.2). The dentists are free to implement any administrative system that are compatible with the SSIA's internal system, however most dentists uses the T4-system, a product from Practice Work.¹²⁴ In this system the dentist can see and handle patient-information, bookings, patient-journal, economy and administration (figure 5.3). While making the diagnosis the dentist make use of an idealized image of teeth's in which certain procedures are marked and previous mending and fillings. In their administrative systems the dentist will provide diagnosis and procedure done, as well as the personal details of the patients before submitting this to the SSIA. Different dentists have different authority to retrieve information in the system; management might be able to see all patients' information while dentist might only see information for their patients.¹²⁵ As the dentist are able to see the patients history and are connected to the SSIA, the dentist are able to see the insurance collected by the patient for the current time-period and thus what will be deducted from the price of the procedure. The dentist have 14 days to submit the insurance claim to the SSIA, if they fail to do so, they will not be eligible for reimbursement.¹²⁶ Note that while many dentist made use of such systems before 2008, the reform made such systems compulsory for insurance claims.

¹²³Riksrevisionen (2012) p. 16

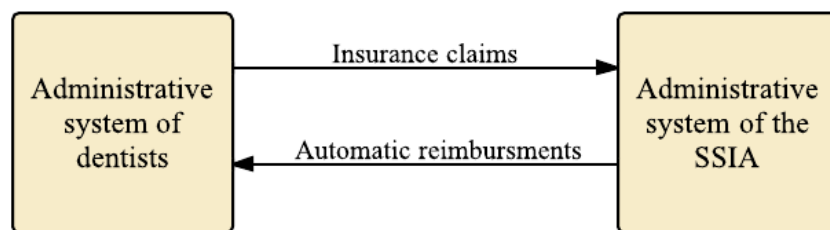
¹²⁴ Other systems in use includes: Alma, Carita, Effica, Opus, Edwards. All with the same basic functions.

¹²⁵Interview Specialist

¹²⁶(document --: Borås.ppt).

The SSIA uses a system called “Tanden” manufactured by the business management’s software developer SAP (figure 5.4). In this system the PA are able to see the patient dental history, past visits to the dentists, previous decisions made by the SSIA, claimed and remaining ATB and STB, the procedure the dentist have made as well as the diagnosis made and other information the dentists have detailed. They will also see the starting date and end date of cases. Navigating the system the PA’s are able to search for dentists, certain procedures and patients. Note here that the PA will interact with the Tanden system when automatic reimbursement has been unable or ex post control is called upon. Using the system the PA will investigate, correct or gratify claims (detailed in the next section), ticking corresponding boxes and changing the status of the claim, when done the claim will go through for reimbursement.¹²⁷

Figure 5.2: The materiality of the e-service




¹²⁷ Interview: Controller

Figure 5.4 The administrative system “Tanden” used by the administrators at SSIA

[illegible]



Försäkringskassan

Personanpassa Systemmeddelanden Logga ut


 Startsida

Patient: **Tester Testorsson / SE-830 76 Stugun**

 Tillbaka

 Spara
  Avbryt

 Söka

Konto: Detaljer
 Bearbeta

Allmänna uppgifter

Patient-ID: 500002727
 ID-nummer:
 Personnummer: 19500615-0401
 Förnamn: Tester
 Efternamn: Testorsson
 Födelsedatum:
 Land:
 Finns registrerad hos Försäkringskassan?
 Ja: ☐
 Nej: ☐

Allmänt tandvårdsbidrag (ATB)

Anv. ☐ 150,00 SEK
 Anv. ☐ 0,00
 Ersättningsgrundande belopp:
 Ersättningsperiodens s..
 Ersättningsperiodens s..
 Senaste besöksdatum:
 ID:

Avtal om abonnemangsavtal

ID:

Patienthistorik
 Söka

Dokument	Status	Besöksdatum	Inskickat	Beslutat	Belopp
 Ej Tilldelade dokument					
 2010-07-01 .. 2011-07-30 (2 500,00 SEK)					

Abbonemangsuppgifter
 Söka

Inget resultat hittades

5.1.6 Process prior to e-service implementation

Prior to the e-service the PA working in dental insurance agency of the SSIA conducted two general tasks: (1) administrating the reimbursements of insurance claims from dentists, (2) ex-ante evaluation of procedure for patients of 65 years of age. The claims from dentists processed by the PA would come the agencies area of uptake, in this case the Västra-Götalands region in the western part of Sweden.

Process prior to e-service implementation: (1) administrating the reimbursements of insurance claims from dentists.

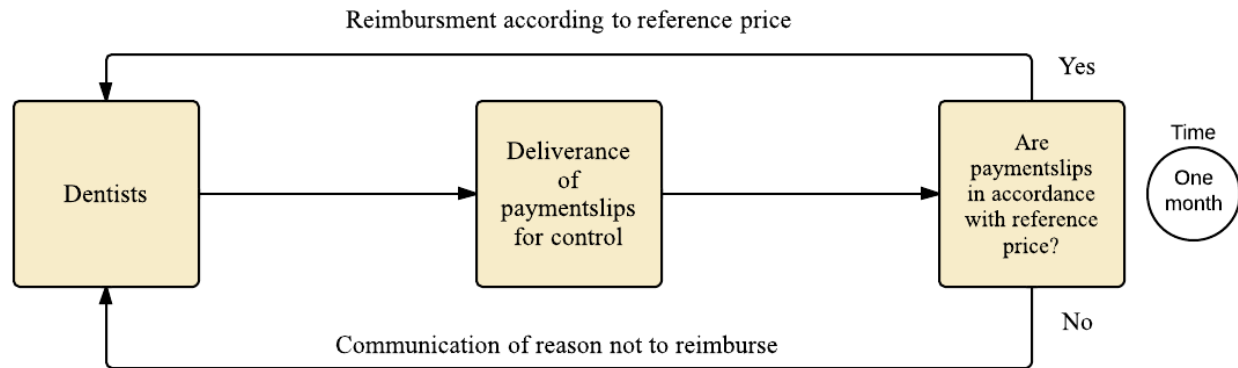
Prior to the e-service implementation in 2008, PA would get a shipment of payment-slips from dentist for reimbursements. The PA would then physically take the payment slip from the pile of payments slips; check the sum of the procedure conducted and check the sum against a register of reference-prices. If the sums matched, the PA would register the sum to be transferred to the dentist in an administrative system that exclusively handled these payments (figure 5.5). The PA had a lead-time of 30 days to make the payment from that the SSIA received the payment slips. The work was mostly conducted by hand, in the words of one administrator working at the time: “(...) for the greater part there was piles of paper that you would pick from. Bundles here and there, and then you had to go through the payment-slips, the procedures. Before (the e-service) you could really say it was paperwork.”¹²⁸

The system permitted no control of these payments, as the dentists were not registered in a system and the PA handled the payments-slips in no particular order. Any suspicion of foul-play and the need for investigation into the claims committed were up to the PA own suspensions. One PA working before 2008 remembers: “The dentists could send in how much he wanted, there were no control at all, he could send in a payment for a procedure done on the same

¹²⁸Interview 3: Controller

patient a month before. Now we can follow precisely what each dentist has done for each patient.”¹²⁹

Figure 5.5: Process prior to e-service implementation: (1) administrating the reimbursements of insurance claims from dentists.

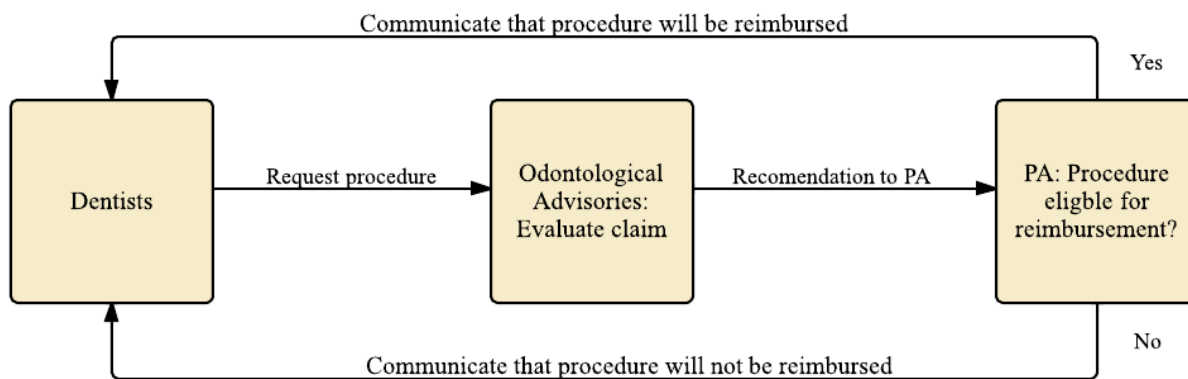


¹²⁹Interview 2: Administrator

Process prior to e-service implementation: (2) ex-ante evaluation of procedure for patients of 65 years of age or above

Prior to the e-service implementation some PA's would also handle ex-ante evaluation of procedures for patients above the age of 65. The patient and the dentists were forced to wait for the decision made by the PA of what compensation the patient were eligible for before the procedure could begin. The requested procedure was first evaluated by in-house dentists staffed by the SSIA, so called odontological advisories (OA). Given the recommendations submitted by the OA, the PA would make a decision if procedure were eligible for subvention in accordance to the dental law (figure 5.6). One PA omits that in effect, the requested procedure were evaluated by the OA: *"Then (in 2007) we would get claims that our dentists would had evaluated, then we would make a decision and write the corresponding amount and so forth".*¹³⁰

Figure 5.6: Process prior to e-service implementation: (2) ex-ante evaluation of procedure for patients of 65 years of age.



¹³⁰Interview 4: controller

5.1.7 Process after e-service implementation

As a result of the e-service, reimbursement of insurance claims is made without the involvement of PA's in 98 percent of all cases. This automation has freed up the work force to handle new sets of responsibilities. As a consequence, the workforce of the dentist agency of the SSIA has split up into new roles with different sets of responsibilities: (1) The administrator handles instances when corrections are necessary to the automatic process, (2) the controller handles ex-post controls of insurance claims. In turn, the tasks and processes of these roles will be described in the following.

After e-service implementation: (1) Work tasks and processes of the Administrator

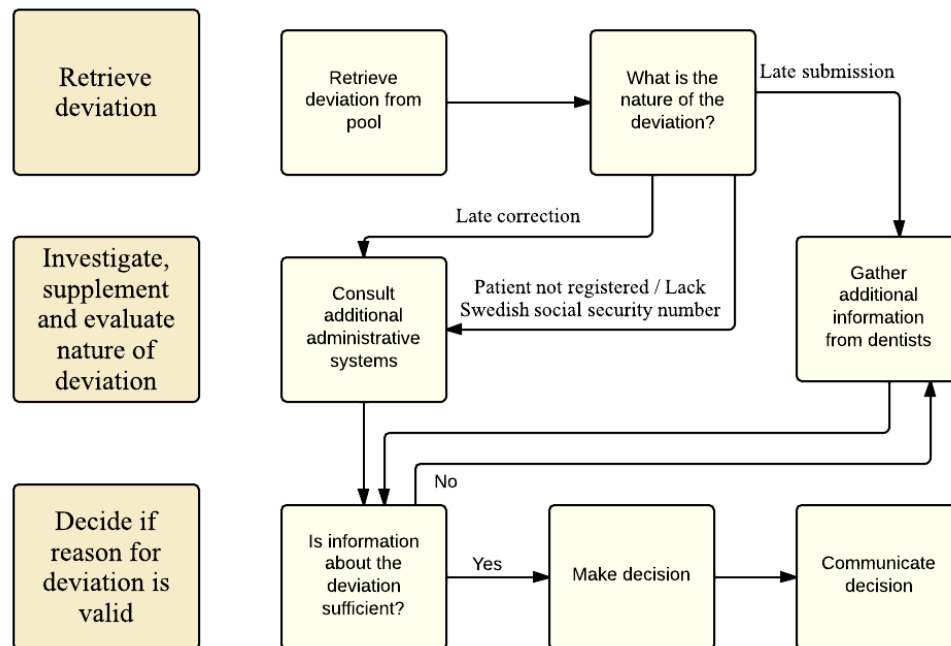
The administrator handles instances when administrative system (Tanden) alerts the administrator that it was unable to process the automatic reimbursement of the dentist claim. These tasks involve the different kinds of deviations present in the system: claims that have been reported to the SSIA later than 14 days after the procedure took place, claims where the patient is not covered by the dental insurance, patient lacks a Swedish social security number but is eligible to the insurance in accordance with EU-conventions, late correction done by dentist after the claim has been sent to SSIA.

The process is started when the administrator selects a case from a common inbox and then investigates what caused the alert. In the case of late submissions of claims the administrator investigates the motivation for such late claims given by the dentist and makes an assessment whether or not this is to regard as a valid reason according to SSIA standards: *"They (dentists) must write the reason why the claim is submitted later than 14 days, in this case (points at screen) it has something to do with the registration of the patient (in the dentists system)."*¹³¹ In some cases the administrator seeks further information outside the Tanden system, for example if the motivation is legal or technical in nature. If the motivation is unclear or ambiguous in nature, the dentist must be contacted for further information. The same process applies for corrections made by dentists after submission, where the administrator evaluates the motivation submitted to the administrator as a part of the correction and the task for the administrator is to evaluate such claims. In the case of claims in which the patient is not

¹³¹ Interview 2: administrator

registered in the SSIA system or lacks a Swedish social security number the administrators task consists of determining if the patient is eligible for such claims by checking other systems in which the patient might be registered, and/or the patients right to the insurance as part of inter-governmental arrangements (i.e. Nordic or EU conventions). In the last part of the process the administrator is to communicate the decision made to the dentists (figure 5.7).

Figure 5.7: After e-service implementation: (1) Work processes of the Administrator



“Deviation” here refers to any instances where the system alerts the administrator that automatic reimbursement is impossible.

After e-service implementation: (2) Work tasks and processes of the Controller

The second role at the dental insurance agency of the SSIA is occupied with ex-ante controls of procedures done by dentists. The cases subjected for control is selected by random-sampling, directional control of certain procedures given priority and control of dentists suspected of misusing the system. The controller at the Göteborg office does not select the dentist subjected

for control, this selection process is conducted in Lund. The controller retrieves a claim from an electronic pool of unclaimed cases. Prior to this, the dentist have been notified and given three weeks to send documentation needed for the control. The intention is that this is to be done electronically, but in most cases the documentation is sent by mail so the first step of the controllers process is to sort and check the provided documents and to send a reminder if the documentation is insufficient or incorrect. The documentation sent to the SSIA consists of journals, photos, x-rays, models, CD's, and paper documentation. When the controller has adequate documentation the controller makes an assessment if the procedure is reasonable given the diagnosis made by dentists and the patient's previous record and dental health. The requirement of dentists to submit a diagnosis in connection with a procedure is something that was introduced with the e-service. The controller than make an assessment according to the dental law and make a decision accordingly: *"(...) so I retrieve the documentation that I received and then I will go through it according to the law, either I will reach a decision that it's OK, then I write such a decision, or I will come to the conclusion that it's not OK and then I write a decision of reclamation."*¹³²

The assessment of the procedure is not limited to establishing if the procedure is covered by the dental law, it also involves an assessment if the procedure is reasonable in light of the diagnosis: *"(...) you think that the procedure is according to the law, but the diagnosis is not, then you will swap for something else (procedure) that you think is suitable, and you make a demand for the difference (in price.)"*¹³³ If the procedure done by the dentist is too complex, the controller has the option to consult the OA, to get a second opinion on the assessment made by the controller. If the decision made is negative, meaning a demand for repayment of previously transferred reimbursements to the dentist, the dentist will be informed and given 14 days to respond. The controller then makes an assessment of the response from the dentist, and makes a final decision to demand repayment or not (figure 5.8).

¹³²Interview: 4 controller

¹³³Interview 3: Controller p. 3

Figure 5.8: Process for ex post control of insurance claims.

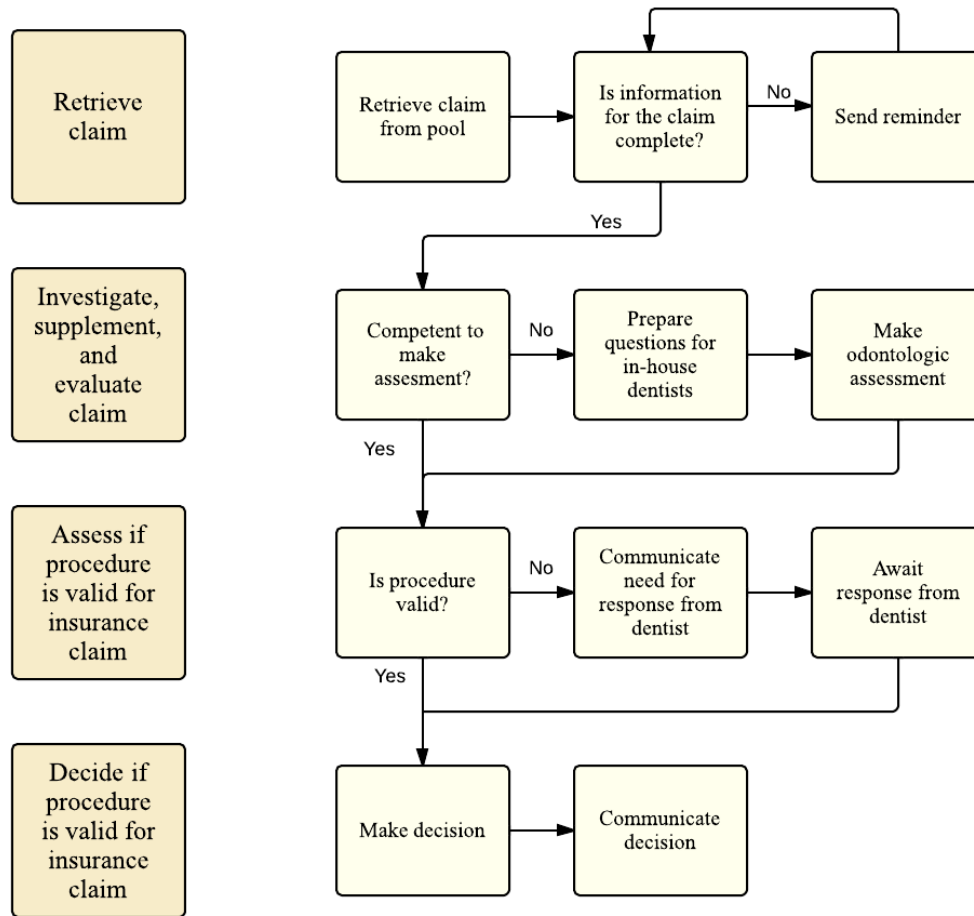


Figure 5.8. Simplified flow-chart of the workflow of the process for ex post control of insurance claims from internal documents and conducted interviews.

The PA's are instructed in the way they should handle the process by instructing documents - ENSA-processes. The ENSA-processes exists for all types of cases handled by the SSIA, and the PA's are frequently educated in them following a release of a new ENSA-Process. The PA's interviewed say they are informed by updates but rarely consult the ENSA-material in their day-to-day routines: *"(...) in most cases you get an education in the changes that's been made to the process, but when the new information is settled you rarely consult it again."*¹³⁴

¹³⁴ Interview 3: Controller

5.1.8 Changes in terms of roles from e-service implementation

As previously stated the e-service led to the development of two new roles, the administrator and the controller. This reformation and specialization of work tasks were done in 2010, two years after e-service implementation. This was a decision made by management, before this the PA worked with the tasks associated with the control and administration interchangeably. This division was not anticipated beforehand, but a specialization that became apparent with technology use.¹³⁵ Today people recruit to the dentist department of the SSIA are recruited either as controllers or administrators. The controller position demands a completed university degree to be eligible for hiring while an upper-secondary degree is sufficient for the administrator position. Prior to this reformation the PA working in the dental department of the SSIA were asked whether they would like to become controllers or administrators, assessing their own qualities they were instructed to make judgment on what tasks suited them best. One controller states that: *“We were asked to estimate ourselves, I felt then that I wanted to investigate (...) I feel that it’s fun to...the others deal with fast cases and data, data, data. I’m allowed to look see x-rays, be more thorough and contrast it with the legislation.”*¹³⁶ One administrator, when asked why she made the choice to become an administrator, say that: *“I felt that it might become too burdensome to evaluate the work of the dentists, they can be very eager and might not respond well to having their work examined by SSIA-employees. (...) I was worried that it might be a lot of calls like that from the dentists.”*¹³⁷ This statement point to another repositioning of roles that came from the e-service implementation, namely the strengthening of the PA’s position vis-à-vis the dentists. The e-service brought with it heightened control of the dentists, a change that the dentists were initially opposed: *“It was a thorn in their side to be controlled (...) a lot of them were screaming that this was sheer Russia! But these types of opinions have disappeared altogether; they have discovered that everything runs a lot smoother now, for them and for us.”*¹³⁸ This opposition was also due to the fact that the PA’s that were to control the dentists have no previous odontological schooling. The controllers initially were aided by the OA, however over time as the competence of the controllers to make odontological assessments grew, the need to consult the OA decreased. This also marks a shift in the roles of the controllers as

¹³⁵ Interview 4: Controller

¹³⁶ Interview 4: Controller

¹³⁷ Interview 4: Controller

¹³⁸ Interview 3: Controller

before the e-service implementation, before e-service implementation the PA's made their assessments based on the OA's recommendations (see section 5.1.6), after e-service implementation the OA is consulted when the controller requires additional aid to help make an assessment: *"Then (before the e-service) our dentists (OA) would take care of the case first and did the investigation, now we do the investigation so I need much more competence today to deal with a case and close it myself, without their help. Before (e-service) they (OA) had always looked at it before the PA's got involved in the case, so it's a big difference."*¹³⁹

5.1.9 Changes in terms of tasks

Overall the PA's are contempt with not having to devote as much time on manual handling of insurance-cases. Some of the PA's however, expresses the opinion that it took some time to adjust to the new system but that over time it became a natural part of their daily work. Some expresses relief over a heightened sense of control over the work-flow compared to the manual handling that were before the e-service, one PA's even say that before the new system there were: *"piles of paper everywhere"*.¹⁴⁰ Initially there were a lot of unnecessary steps in the system - something that has been that's been remedied with time: *"To make a notation you had to perform four to five steps, there were a lot of hassle, but this types of things have been solved with time"*.¹⁴¹ The Tanden interface is based on the ENSA-processes however the order the PA's handle cases are not controlled: *"To a certain degree you can put in the status for the investigation your handling (...) but you can work around this and you're not required to do so because there is no restrictions in the system"*.¹⁴² Prior to e-service implementation some PA's were worried that some social aspects of the work would be lost as more time were spent in front of computer screens with the new system, with time however these sentiments have disappeared.¹⁴³

Table 5.1: Overview of the e-service implementation in case 1

E-service	When implemented?	Process development?	Overall rationale for implementation?	System implementation?
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¹³⁹ Interview 4 Controller

¹⁴⁰ Interview 4: Controller

¹⁴¹ Interview 3: Controller

¹⁴² Interview 4: Controller

¹⁴³ Interview 4: Controller

Reimbursements to dentist according to new dental law	2008	Yes, but not depending on e-service alone	New technology needed to sustain law	Yes
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5.2 Case 2: Street and Park department of Trollhättan municipality

The Trollhättan Municipality is located in the Västra Götaland County, in the western part of Sweden. As of 2010² it had 55,749 inhabitants making it the 41st biggest municipality in Sweden.¹⁴⁴ The street and park office is responsible for the street-construction, maintenance, parking, safety, and permits for the municipality.¹⁴⁵

5.2.1 E-services offered by Trollhättan Municipality

Starting from January 2012, Trollhättan municipality is working on process-developed e-services based on the platform FlexiteBPMS.¹⁴⁶ The municipality offers forms in PDF format for citizen to submit to the municipality in the areas of education, children's care, social services, construction permits, street and park, environment and trade and industry.¹⁴⁷ The street and park office offers these forms for different parking-permits and permits for special transports, tree felling, flower boxes and excavation permits. These forms are to be transformed into e-services, meaning that the forms can filled out and submitted online.¹⁴⁸

5.2.2 E-service procurement and implementation

The Flexite platform implemented for handling the e-service and process-development was selected on the basis of a survey of available platforms conducted by Trollhättan municipality during 2012. The platforms surveyed were evaluated on their ability to perform: process-modeling on workflows for handling e-services, case-management and the ability to produce dynamic web-forms (e-services). The surveyed platforms were ranked according to process support, case management, forms, affordability, functionality and performance. Upon this survey the FlexiteBPMS suite was selected.¹⁴⁹ The decision to implement a process-based system for

¹⁴⁴ Trollhättan stad (2012) p. 4

¹⁴⁵ <http://www.trollhattan.se/Startsida/Trafik-gator-och-vagar/>

¹⁴⁶ Internaldocument--: "utredning gällande..."

¹⁴⁷ Electronic resource: Trollhättan (2013) "självservice"

¹⁴⁸ Electronic resource: Trollhättan stad (2013) självservice – gator och vägar"

¹⁴⁹ Internaldocument--: Utredning gällande val av e-tjänsteplattform

handling e-services stems from initiatives taken in the IT-department at Trollhättan Municipality however the need to develop e-services was expressed from upper-management. Initial cost for the system is from the licensing agreement; however Flexeuropa has trained one business developer at Trollhättan municipality in the software, who is working continuously with developing processes as the license permits unlimited processes to be developed without additional cost.¹⁵⁰

5.2.3 Process mapping– E-service as small part of the process re-modeling

To track the expected changes that may be brought on by the e-service for the PA's of the street and park department the details of the process development need to be outlined first. In fact, the e-services to be implemented are only the visible façade of the efforts conducted in the Trollhättan Municipality to implement an administrative system based on process mapping. In the words of the business developer at the Trollhättan municipality : *"(...) business development is our main focus and this small form in the beginning, it's a bonus if it becomes an e-service, but the reason we are doing this is because we want to be more effective."*¹⁵¹ The progression towards e-services in Trollhättan is thus started in the development of processes to sustain the workflows connected to the service that are to be provided electronically. This development is started with workshop session in which the PA's and management responsible for carrying out the service (PA's) are summoned in sessions to map out the work-process handling the service visually (figure 5.9). In a first step the boundaries are discussed, namely what work tasks are regarded as belonging to the specific service and what is to be excluded.¹⁵² In the next step in the workshop, the PA's make detailed accounts on what does who, in what order, corresponding to who, and the expected lead-times for each step. This verbalization and questioning of the work tasks conducted by the PA's can have far-reaching consequences: *"It has happened that you have been able to question so much that you realize that one of the positions sitting around the table is redundant."*¹⁵³ The workshops results in a process map that is transformed into the administrative system, meaning that the particular steps discussed agreed upon in the workshop

¹⁵⁰ Interview 5: Business developer

¹⁵¹ Interview 5: Business developer

¹⁵² As an example: the process of "hiring new staff" are to be distinguished from the process of "recruitment of new staff".

¹⁵³ Interview 5: Business developer

and the lead-times attributed to each steps is incorporated in the administrative interface in which the PA handles the service (figure 5.10).

Figure 5.9: Example of the workflow maps resulting from workshops to be turned into the PA's administrative interface

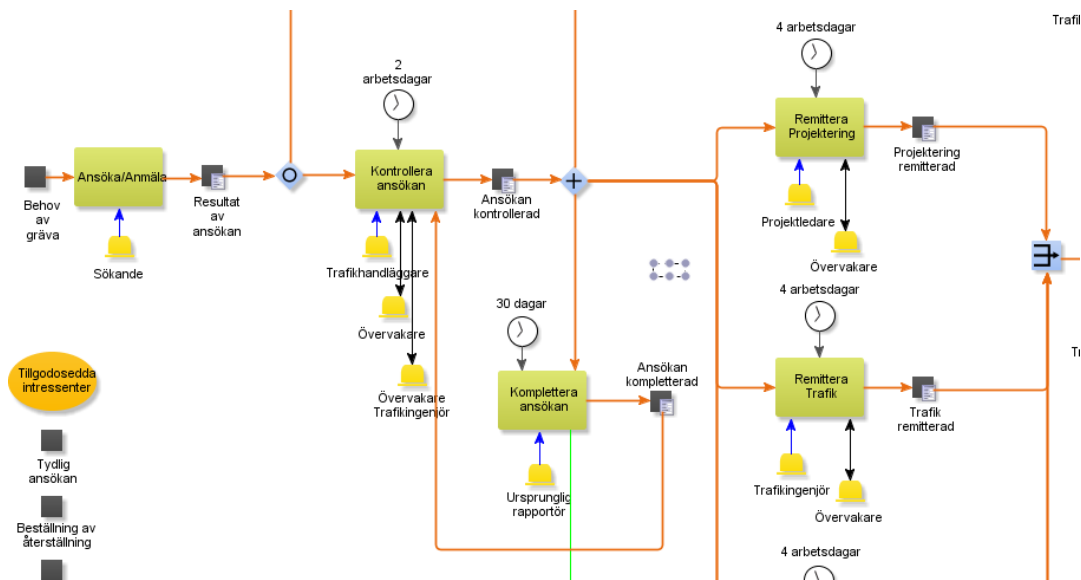
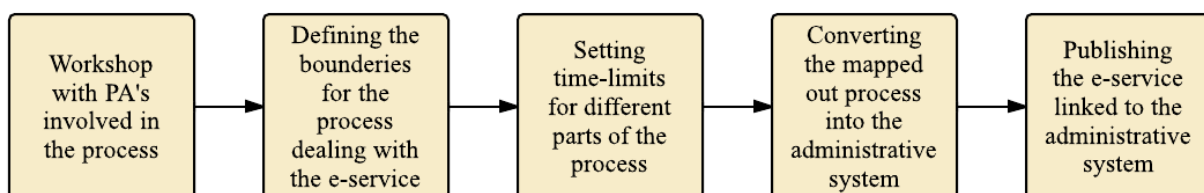


Figure shows the process-map for excavation permits derived during workshops. The figure shows a small part of the process map as to show the map in its entirety would take up to much space.

Figure 5.10: The steps in creating process-based e-services in the Trollhättan municipality

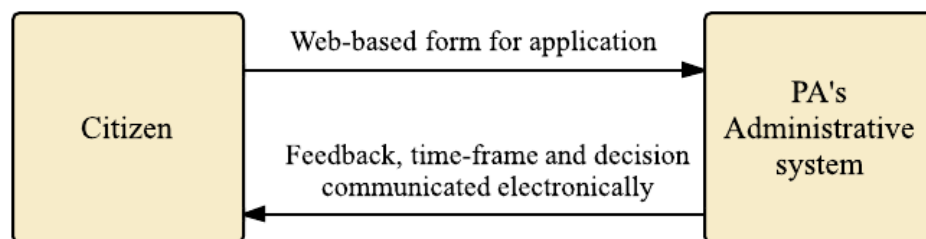


5.2.4 Materiality of the e-service - application for excavation permits

The e-service consists of: (1) web-based form for application, (2) the ability to receive communication of the status of the application, time frame for its processing, and decision made electronically, (3) and a new administrative system for the PA handling the application (figure 5.11).

Currently, citizen or business operator need to either physically collect the required form from the municipality building or have it printed from a PDF accessed from the municipality's homepage, and then send it by mail to the municipality for consideration. Often the first contact with the citizen applying for an excavation permits are done by phone, as the applicant will phone in to the municipality and express the need to open up a street. The PA will then express the details and possibilities of such groundwork, and request an application form to be submitted to the municipality. Following e-service implementation the PA will direct the lion-share of the applications to the e-service, as all the pertinent information for the application will be required to be submitted in the web-form before the application will be processed. When the citizen submits an application using the form he/she will receive an e-mail stating the expected processing time for such an application, this was not done previous to e-service implementation. Feedback and the decision to grant the permit will also be communicated electronically.¹⁵⁴

Figure 5.11: Materiality of the e-service – excavation permits



¹⁵⁴ Interview 5: Business developer

5.2.5 Anticipated changes in terms of process

Prior to e-service implementation

The process of handling excavation permits is started when the application made by citizens or businesses are submitted to the municipality. The application is then controlled by the traffic-administrator who contacts the applicant if the information is unclear or uncompleted. When the application is complete a referral is made to the different departments affected: planning, traffic, street and park. The statements made by these agencies are then to be compiled and a decision made by management. When the excavation has taken place, the applicant is to inform the municipality so the traffic-administrator can request a restoration of the site.¹⁵⁵

After the e-service implementation

The steps of the process will remain unchanged; however the administrative interface will automatically make referrals, contact the applicant and compile the statements made by the different departments. The administrative system also controls in what sequence different actors in the process will be contacted and what information will be submitted and sets lead-times for the completion of each step.

5.2.6 Anticipated changes in roles

No new roles will be established following e-service implementation, one PA explains that: *“I will have the same role I have today, but I will not have to call and chase people down, that will be the big benefit.”*¹⁵⁶

¹⁵⁵ Interview 5: Business developer

¹⁵⁶ Interview 6: administrator

5.2.7 Anticipated changes in tasks

Lead times

The current work procedures declare that a submitted permit should not take more than two weeks to process, following e-service implementation lead-times for the different steps in the process will instead be in place, assuring that the PA conducts her work during the specified time-frames. These lead-times for different steps in the process were discussed and decided during workshops and would often lead to a shortening of handling times: *“You always want to provide better service, this is something you always want to do, so I think we tried to reduce it (lead-times) based on this.”*¹⁵⁷

Changes in the information distribution

The system implemented will gather decision made by PA in different departments on the excavation permits in the administrative interface, abolishing some physical contact between the PA's as decisions and information are communicated within the system. Another change that is anticipated from e-service implementation and the preceding process development is that some information required from the existing application will be lifted from the e-service form. The PA also anticipated changes in the performed tasks from the e-service as less time will be devoted to informing citizens and correcting wrongfully submitted applications by phone: *“It can be such a simple thing that things are missing, or the person who submitted the form had such a bad handwriting that you can't make out what it says, it can be anything, the time spent on these type manual-labor is something you are able to reduce.”*¹⁵⁸

Heightened control of work procedures

The implemented administrative interface also comprise of a 'warning system' which alerts management if permits are not processed in due time. If the lead-times established in the workshops and later translated are not met, management will be alerted automatically. This is a

¹⁵⁷ Interview 6: Administrator.

¹⁵⁸ Interview 5: Business developer

development that is deemed favorable by the PA: “(...) because it’s our ambition that they should not need to wait, everyone are entitled to good service, so I think it’s great that it can go to someone else who can remind you”.¹⁵⁹ The PA expresses the opinion that heightened control offered by the system as management will be more informed of the work conducted and will be easily alerted if the workload is too cumbersome: “If I were to do an error that would only be good, for one part he (manager) can see what I am doing and for another it can actually be the case that we are swamped and then it’s a good signal to management.”¹⁶⁰

Table 5.2 Overview of the e-service implementation in case 2

E-service	When?	Process development?	Overall rationale for implementation?	System implementation?
Various, existing municipal service arrangements	Forthcoming	Yes	Information control, efficiency in terms of lead-times.	Yes

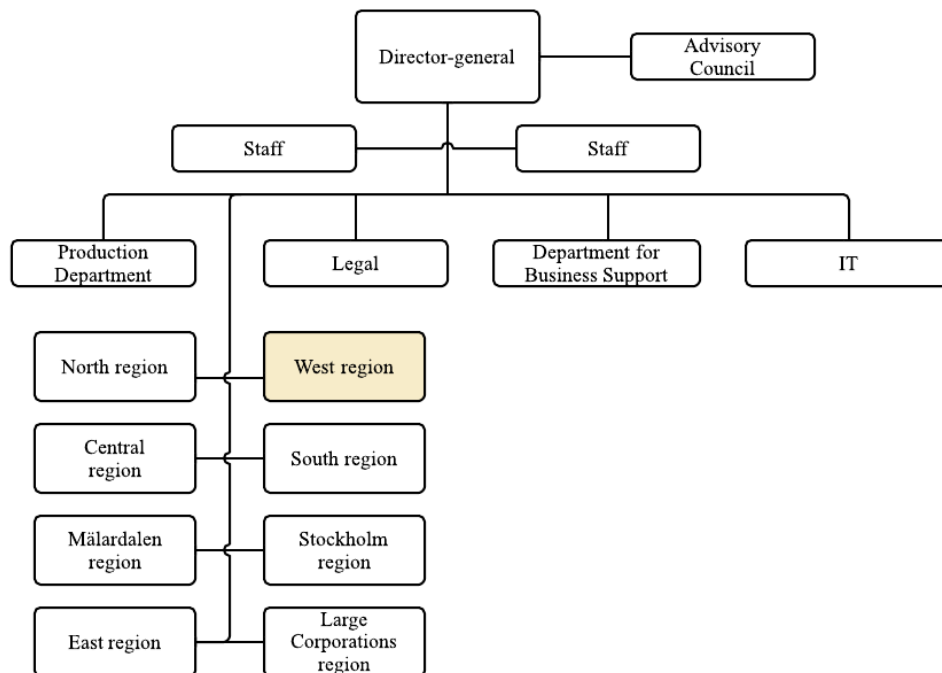
¹⁵⁹Interview 6: Administrator

¹⁶⁰Interview 6: Administrator

5.3 Case 3: Value Added Tax submissions to the Swedish Tax Office

The Swedish office is given the prerogative from the Swedish government to secure the funding of the public sector by retrieving tax from enterprises and citizens, and to take part in investigation in to tax-fraud, as of 2012 it had 10 463 employees.¹⁶¹ The possibility to submit tax-returns electronically was made a priority in the Swedish government's e-strategy, as a consequence the STO work actively to promote e-services. A strategy that has been successful: in 2009 the office collected 3 690 134 digital signatures, in 2012, 11 804 712 signatures were collected in the STO:s e-services.¹⁶² Besides the head-office, and different adjacent staffs and departments, the STO is organized in different regions that handle cases from its areas of up-take. Figure 5.12 shows the organization of the STO with the west region highlighted, in which the case-study took place.¹⁶³

Figure 5.12: The organizational set-up of the STO



¹⁶¹Skatteverket (2012) p. 6-8

¹⁶²Skatteverket (2012) p. 28, making a digital signature using an electronic identification service is part of using the e-service, these numbers correspond to both citizen and enterprises using e-services.

¹⁶³Skatteverket (2012) p. 8

5.3.1 Value Added Tax returns

As part of the Swedish Income Tax Law (inkomstskattelagen) every business enterprise is required to pay a VAT on transactions made on commodities in Sweden to the state. The VAT is either: 25, 12 or 6 percent of the sale price depending on the commodity sold.¹⁶⁴ Any enterprise is to register with the STA to be able to submit the VAT and other responsibilities to the STO. This can either be made by mail or electronically through the portal verksam.se.¹⁶⁵ Depending on the size of the turnover, the VAT is to be distributed to the STO once a year, once a quarter or once a month. The VAT is to be submitted on a VAT-return no later than the month after the tax-period of which the turnover has been produced.¹⁶⁶

5.3.2 The materiality and process of the e-service – Value added tax returns

The e-service consists of the ability to submit the VAT-returns electronically, and to make corrections by sending in a new VAT-return electronically. The placement of the e-service in the process of handling the VAT can be seen in figure 5.13. After submission the VAT-return is automatically assessed by statistical analysis, if the records in anyway are deemed anomalistic in reverence to: prior submitted records, other records submitted by affiliations of the same size in the same trade and other parameters, they will be directed to the tax-administrator for control. If the submitted record is deemed to be in order by the control-system, they are validated without the involvement of tax-administrators and will impact the enterprise tax account. The tax-administrator thus deals with submissions that are erroneous or anomalistic according to the system and corrections made to VAT-returns. An investigation is also instigated by internal audit, if for example in an investigation in to one enterprise a billing was made to the company in question, and no documentation of this can be found.¹⁶⁷ When the tax-administrator corrects a sum submitted to the SOA, the tax-administrator executes this action and a digital screen-print of the decision is made and the enterprise tax-account is adjusted overnight.

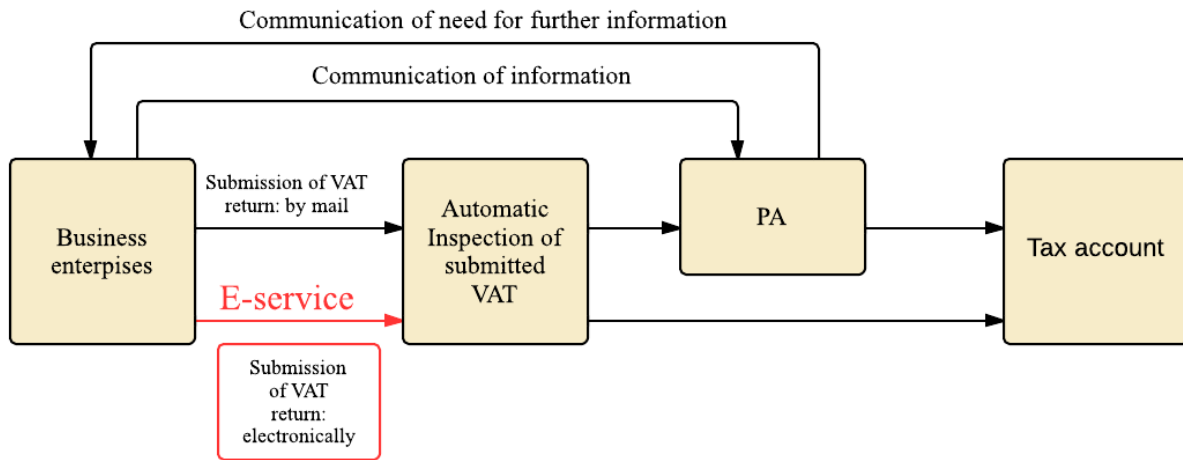
¹⁶⁴ Skatteverket ”vad är moms”

¹⁶⁵ Skatteverket ”företag” albeit this is in fact a part of the e-service, for clarity the example of the VAT will be used.

¹⁶⁶ Skatteverket ”redovisa betala moms”

¹⁶⁷ Interview 3: Tax-administrator

Figure 5.13: The process of handling VAT-returns and the implemented e-service in that process



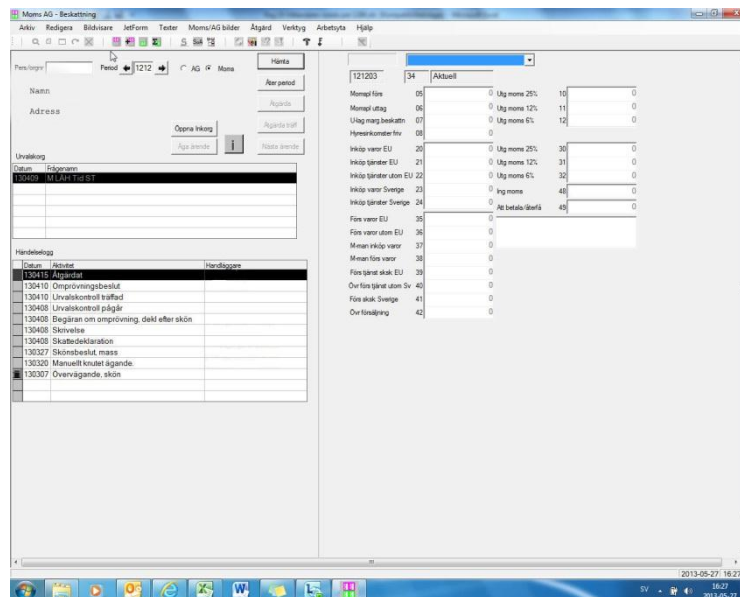
Prior to the e-service implementation the tax-returns would be scanned in designated offices and transferred to the administrative interface, thus the e-service implementation only changes the way the tax-returns are submitted, with no further impact on the tax-administrators interface. The work of scanning the return sent in by mail is still conducted, however this is not done at the tax-office in Göteborg, and the tax-administrator will only deal with the scanned return as it appear in the administrators interface.

The interface used by the administrator handling the VAT - “MAGI” - was implemented in -98, well before to e-service implementation (figure 5.14). It is frequently updated but not in a revolutionary way: *“It is possible that they done things I don’t see, the program is basically the same as when I started in 2006”*.¹⁶⁸ The PA expresses the opinion that the program has become easier to work with time, but any big changes in the program is due to changes in the tax-law and not function. The PA have the ability to influence the updates of the program by providing feedback to management and IT-staff however such feedback is not readably implemented: *“Often such things are low-prioritized with regards to all the other things that are more important, I understand that completely, but I think it makes for a less fun to work with”*.¹⁶⁹

¹⁶⁸ Interview 3: Tax-administrator

¹⁶⁹ Interview 3: Tax administrator

Figure 5.14: The administrative system used by PA's handling the VAT



5.3.3 Changes in roles

The e-service implementation has not lead to the establishment of new roles in handling the process of VAT-returns: *"(...) I don't think there is any difference here in how we work, there are some differences in what you investigate, but that has more to do with competence"*.¹⁷⁰

Cases are both randomly assigned to PA's and distributed according to difficulty; more experienced tax-administrators handle more complex cases. Every tax-administrator has personal inbox in which the cases that have been distributed to him/her are assembled.¹⁷¹ As a norm, the tax-administrators working with the VAT does not work exclusively with the VAT but carries out another duty, for example to register new companies with the STO. Some tax-administrators have the status as specialists in the office; however this is due to competences coming from experience and is unrelated to the e-service. Likewise the division of labor is based on experience and preference and unrelated to the e-service. One tax-administrator states that as the e-service has led to more time devoted to investigations instead of correcting errors, and this have increased the overall level of competence: *"(...) of course if we are released from the*

¹⁷⁰ Interview 3: Tax-administrator

¹⁷¹ Interview 4: Tax-administrator

burden of handling small corrections we have more time get acquainted with other issues, we get better that way, we get more expertise.”¹⁷²

5.3.4 Changes in tasks

The long-term goal of the e-service implementation is redirect the attention of the tax-administrators from correcting the submitted returns to investigations, as the e-service will make this work less frequent by correcting the returns as they are being submitted: *“The long-term goal is for us to be able to focus more on inspection (...) that’s why they want to get more people to use e-services, so we don’t have to devote our time on people who make small errors.”¹⁷³* One tax-administrator states that while simple errors are reduced as more enterprises make use of the e-service the correction made ad-hoc have increased: *“It is much easier than to call the STA, order a new form, write a letter, and then send it and pay for stamp, now you can just log on and make the correction”.*¹⁷⁴ The information submitted on the returns online are exactly the same as in the paper versions, taking considerations to the conditions for the tax-return, these are not easily changed: *“It all depends on our requirements, they are after all based on the law.”¹⁷⁵*

The tax office in Göteborg handles taxes for enterprises in the Göteborg area, even if physical decoupling could be accomplished with the system: *“I could walk into the TAX-office in Halmstad if I wanted, and work there, and have access to all the documents I need.”¹⁷⁶* Some deductibles and taxes such as the deduction for home improvements and housekeeping, excise duty, and car-import are not geographically organized and offices responsible for these tasks handle returns from the all over Sweden. However these instances make up a small part of the overall work conducted at the STO.

¹⁷² Interview 4: Tax-administrator

¹⁷³ Interview 4: Tax-administrator

¹⁷⁴ Interview 4: Tax-administrator

¹⁷⁵ Interview 1: Tax administrator

¹⁷⁶ Interview 3: Tax-administrator

5.3.5 Changes in process

No new processes were established with e-service implementation. The STA works with work descriptions for different instances and cases that help guide the tax-administrators work. One Tax-administrator states that the he mainly consults the work descriptions when there is a novelty in the work routine, but not as a part of his daily work routine: *“(...) if it’s a new type of questions that I get than I want to see what they say about it. But then it’s a question of experience and it’s more frequent that you discuss the case with a colleague to see how they have done.”*¹⁷⁷ The tax-administrators are not guided by process-mapping with a step-by-step guide for how the work should be conducted: *“No, they may exist (process-maps), but that’s not something that we do, instead you have a responsibility for your cases and they will come with a certain periodicity, when you have worked for some time you know how to control the flows in a good way and to achieve efficiency, but there are now strict control that dictates who the investigation should proceed. Instead we are fairly free, we decide what to we want to investigate, it’s all about experience and imagination really.”*¹⁷⁸ This freedom extends to quotas on cases handled and lead-times: *“(...) we can informed that the case-handling-frequency is to low, but that nothing that us tax-administrators take notice of really.”*¹⁷⁹ One tax-administrator states that while no process-mapping is done in her office, some process mapping is done by upper-management: *“We don’t have a process map, we do process-mapping for everything but they are made by the head-office and will then become the work-descriptions.”*¹⁸⁰

Case 3: Overview of the e-service implementation

E-service	When?	Process development?	Overall rationale for implementation?	System implementation?
The possibility to submit VAT-returns online	2006	No	Better handling-efficiency	No, linked to existing system

¹⁷⁷ Interview 3: Tax-administrator

¹⁷⁸ Interview 3: Tax-administrator

¹⁷⁹ Interview 3: Tax-administrator

¹⁸⁰ Interview 1: Tax administrator

5.4 Summarize of case studies

Roles

In the case of the dentist department of the SSIA, the implementation brought major changes to the division of work and the competencies needed to carry out these tasks. With time the implementation of the e-service and the new procedures it carried led to the division into two roles: the administrator and the controller with different responsibilities, status and positioning towards the system and in the organization. In the case of the STO no such change in division was present and roles were remained the same and based on experience. In the case of Trollhättan the forthcoming implementation is thought to clarify responsibilities, however work division will be essentially be the same after implementation.

In the dentist department of the SSIA new competencies were developed with time as the controller developed expertise to make odontological judgments, strengthening their position vis-à-vis the in-house dentists and dentists. No such developments were reported by the PA's in Trollhättan and the STO, however one tax-administrator in the STO claims that the overall competence have increased due to e-service implementation.

Tasks

In the STO there has been no sizable changes in the tasks performed, however less time is spent on manual handling of erroneous tax-returns. In the SSIA a substantial shift took place as the e-service abolished the need to manually handling pay-slips from dentist and instead new tasks were implemented in respect to the new system. In the case of Trollhättan it is envisioned that the e-service will lead to less time spent on informing citizens and handling incorrect permits, also less time will be spent on informing the different offices involved in handling permits.

Process

The work-processes of the PA's of the dentist department of the SSIA were changed in a significant way from e-service implementation. In the case of SSIA new ENSA-processes were instigated for handling the e-service, however this were not associated with the e-service *per se*, but a part of a larger reformation of the SSIA organization. In Trollhättan, process-development was found to be the overall rationale for e-service implementation. After e-service implementation the processes mapped at workshops will be translated into the interface used by PA's, effectively controlling the work-order and lead-times of these PA's. In the STO were instructed by work-descriptions of how to handle the cases submitted by e-services; however these tax-administrators were free to plan their procedures after their own accord.

Geographical repositioning

Not in any cases were the PA's relocated as a consequence of e-service implementation. In the case of SSIA and STO, the e-service and adjacent systems were capable of handling cases geographically decoupled from where the PA's were located, however this were only done in the SSIA. As the street and park department of the Trollhättan Municipality handles permits for this municipality, for obvious reasons, no such decoupling was not anticipated in Trollhättan.

Interface

A new interface, *Tanden*, was implemented in SSIA to handle the e-service. The *MAGI*-interface for handling VAT-returns were not implemented in conjunction with the e-service, as it existed way before this. In Trollhättan, a new interface will be implemented based on the processes constructed at workshops.

6. Analysis and conclusion

In the introduction this thesis posed two research questions: (1) *How have the public administrators been affected by the onset of the new technology (e-service)*, and (2) *how has the public administrators been affected by organizational efforts to sustain the new technology (e-service)*. And by means of its theoretical construct developed if (3) *either an explanation model from technology implementation based on planned and formal change, or incremental and informal change, better fits the empirical findings*.

The answer to the research questions is: *it depends*. The case-studies suggests it is possible to implement e-services without experiencing changes in work routines and process (STO), to experience great changes in work routines and processes (SSIA), and to make e-services an occasion to re-structure processes and organizations (Trollhättan) (figure 6.1). Perhaps the biggest finding of this thesis is that the empirical results are too diverse to provide a definitive answer.

In the case of Trollhättan the implementation of e-services provide an occasion for re-structuring. The e-service implementation provided the opportunity to explicitly map the tasks of each PA in order to provide a certain e-service. Here, the e-service offers almost no new materiality that poses a restrained on the PA, instead the PA's work are restrained by the explicit process put forward as a prerequisite for e-service implementation. The process is supported by the technology, however the technology doesn't carry any restrained that in itself forces a new process. The materiality of the technology, paramount to authors like Orlikowski (2008), seems to have little bearing on the changes in terms of PA's work. In fact, e-service implementation provided the opportunity to be *explicitly* outlined and detailed. The business developer attributes small importance to the e-service: "...it's a bonus if it becomes an e-service, but the reason we are doing this is because we want to be more effective."¹⁸¹ This sentiment supports the notion that the overall aim of e-service implementation in Trollhättan is process re-modelling. Akin to

¹⁸¹ Interview 5: Business developer

notions of Scholl et al (2012) and others outlined in section 2.3, process development is here seen as a prerequisite of successful implementation and in fact to the rationale that e-service is a part of the transformative government regime.¹⁸²

In the case of the SSIA, materiality is instead key: the technology posed new opportunities not anticipated by its creators. In the social interplay between the technology and actors, roles tasks and procedures were incrementally changed with time. In fact, new positions were created (administrator/controller). A lion share of the work previously conducted at the dentist department of the SSIA is now automated, faced with this changes the actors involved constructed a whole new set of skills, previously unnecessary, supporting the findings of Eriksson-Zetterquist *et al* (2009) and others outlined in chapter 2.4.¹⁸³ Barley (1990) would indeed be content with this descriptions of events even if the PA's at the SSIA are not voided of formal descriptions of work-order (ENSA-Processes).¹⁸⁴ The slippage in the social fabric (between the technology and the actors and between actors) allowed for a slippage in the social fabric of what constitutes work, and the identity connected to the work-procedures.¹⁸⁵ As one PA puts it: *"I felt that I wanted to investigate (...) the others deal with data data data"*.¹⁸⁶ These changes also allowed the PA working at the Dentist department to strengthening their position against the dentists, and the in-house odontological advisors. Previously a non-descript worker at the dentist department of the SSIA became either an administrator, or a controller with competence enough to challenge the recommendations made by members of another profession. The case of the SSIA also seem to support the notions of Orlikowski (2008) that changes due to technological implementation can be traced to the reciprocal, continuous and recurrent variations in practice the technology sparks and with time becomes structured forms of organizational efforts.

Last but not least, the case of the STO shows that e-service might be implemented into existing organizational structures and work-processes without altering the PA's experience, showing with emphasis that the e-service implementation is contextual and contingent on a wide variety of

¹⁸² Scholl *et al* (2012)p. 315, Weerakkody, *et al* (2011) p. 320

¹⁸³ Eriksson-Zetterquist *et al* (2009)

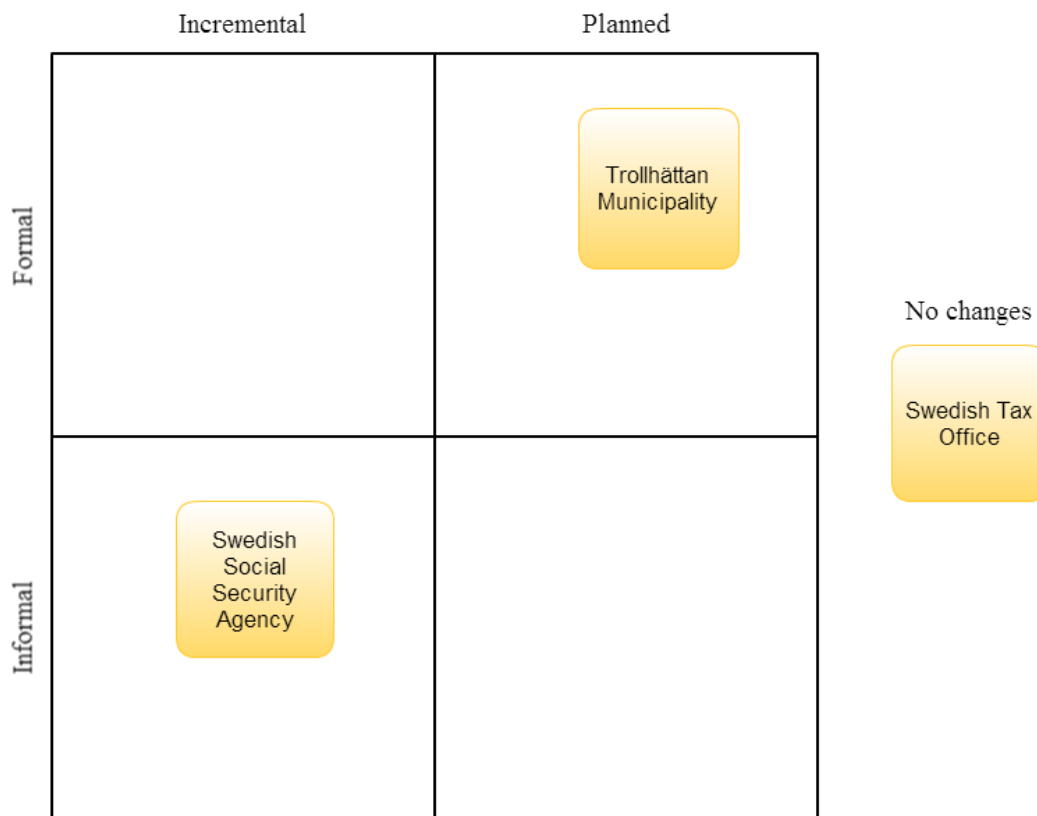
¹⁸⁴ Barley (1990) p. 61

¹⁸⁵ Barley (1990) p. 62ff, Barley (1986) p. 80

¹⁸⁶ Interview 4: Controller

factors. This is not a novel observation – many e-strategies and actions-plans are constructed on the fact that e-service implementation by default will lead to greater efficiency. Further, if automation doesn't make PA's redundant, like in the case of the SSIA, but if anything make PA's more skilled, public expenditure will not decrease in the near future because of e-service implementation.

Figure 6.1 Theoretical realms revisited - the positioning of the case-studies



Given this, the third research questions posed in the introduction is left equally unanswered. Explaining organizational change based on the formal decisions made by management to restructure its organization to provide interoperability and suitable back-office conditions and processes well process remodeling to support the e-service seems to accurately fit the case of the Trollhättan Municipality. Explaining the changes affecting the PA's with the same construct would not be successful in the case of the SSIA. Instead, it's important to understand the informal and incremental changes to construct an analysis.

The observant reader might object that the e-services investigated here are not homogeneous in their design and scope and thus their impact will not be the same (see section 6.2 for a discussion). This is correct, and perhaps the overall theme in the literature and the case-studies is that organizational change, technology induced or otherwise, is contingent on an unforeseeable number of factors and actors which makes predictions of change hard, if not impossible. Despite all this, hopefully this thesis has helped to shed some light on the work of the PA's in the wake of e-service implementation that future researchers on the subject can take into consideration.

6.1 A note on the term e-service

With a term definition as wide as for e-services it's apparent that the term e-services might encompass a wide array of provisions mediated by information technology. It's tangible, and therefore conducive for the object of constructing a thesis, however its only one part of the paramount shift underway in all parts of society brought on by new digital means of governance and structuring. One might argue that this thesis should investigate the way digitalization has changed the working lives of PA's in general, however the term e-services investigated lends the possibility to detach a part of this development to a single service - once analogue now digital - and the effects this have had on the PA's involved. If, like many, we consider the digitalization of our society to be a paradigm shift of unprecedented scope, terms like e-governance and e-services will soon seem terrible outdated and inaccurate since the "e" will be an integrated and natural part of governance and government. This line of reasoning is supported by the empirical findings of this thesis. If, like the three cases of the SSIA, STO and Trollhättan municipality – e-service implementation has diverse consequences, or in the case of STO no direct consequences, on the work conducted of the PA's, perhaps a better starting point for future investigations on the subject is to ask what bearing the term e-services has a concept in the digitalization of public sector activities.

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8. Appendix

8.1 In-house documents

Swedish Social Insurance Agency

”Processen för att utreda och besluta om rätten till statligt tandvårdsstöd”, 2008:13, SSIA

”Processen för att genomföra efterhandskontroll, EHK, inom det statliga tandvårdsstödet”, 2011:4, SSIA

”Presentation Borås 1.ppt” SSIA

Trollhättan

”Process- och e-tjänstutveckling (Workshop).docx”, Trollhättan

”Workshop - inledande presentation.ppt” Trollhättan

”Grävningstillstånd.png” Trollhättan

”Utredning gällande val av e-tjänsteplattform”, Dnr KS 2012/31 – 005, Trollhättan

8.2 Interviews conducted

Interview	Role	Office
Interview 1	Specialist	SSIA
Interview 2	Administrator	SSIA
Interview 3	Controller	SSIA
Interview 4	Controller	SSIA
Interview 5	Business-Developer	Trollhättan
Interview 6	Administrator	Trollhättan
Interview 7	Tax-administrator	STO
Interview 8	Tax-administrator	STO
Interview 9	Tax-administrator	STO
Interview 10	Tax-administrator	STO
Interview 11	Tax-administrator	STO

8.3 Interview guide

1. Describe your normal work-day?
2. What's the first thing you do in the morning?
3. How is work distributed to you?
4. When did you start working at the NN?
5. Were there any e-services available when you started working?
6. How was work conducted before the e-service?
7. Was there a lot of manual labor involved?
8. Has there been any let-of since the e-service was implemented?
9. How installed the system?
10. How and by who was it developed?
11. Is there any explicit process-map that guides your work?
12. Is the e-service part of a mapped process?
13. Do you divert from the explicit work-process described?
14. What's the main drawback from the e-service?
15. What's the biggest improvement from the e-service?
16. Has the e-service changed your the way you conduct your work?
17. What was the cost of e-service implementation?
18. Show me the interface you use everyday to conduct work?
19. How often is your interface updated?

20. How do you express dissatisfaction with the system?
21. Have the e-service reduced the number of errors committed by PA?
22. Have the e-service made you geographically decoupled from the citizens demanding service location?
23. Has the e-service changed the way people are recruited to the office?
24. Are you happy with the nature of your work?
25. Are the e-service and its supporting interface easy to work with?
26. Have your title changed since e-service implementation?

8.4 Why sociomateriality is not presented as an analytical tool in this thesis

A recent research stream tries to be above the outlined discussion about what importance should be attributed to the materiality of technology by making the claim that it is incorrect to discuss how actors and artifacts influence each other either through impact or interactions. Instead the 'sociomaterial' agencies of the 'material' and the 'social' are so intertwined that any effort to distinguish between them can only serve conceptual purposes.¹⁸⁷ According to Orlikowski and Scott (2008) entities have no inherent properties but require their characteristics in their interpenetration. This line of research is influenced by Latour's (2005) work on actor-network theory that makes the argument that scholars often make the arbitrary distinction between 'material' and 'social', and that social scientists in fact makes this distinction only as a practical and political necessity. Instead, Latour argues, researchers should direct their attention to the empirical reality where objects, people and artifacts are joined together in networks of associations that develop momentum over time.¹⁸⁸

¹⁸⁷Orlikowski and Scott (2008) p. 455

¹⁸⁸Latour (2005)

Although it might be conceptually correct and fruitful of Olikowski (2007) to make the statement that: *“the social and the material are considered to be inextricably related, there is no social that is not also material, and no material that is not also social.”*¹⁸⁹ Several researchers have pointed to the fact that this rejection of an ontological distinction between the material and the social makes empirical research difficult. It is deemed that operationalization following this type of definition is difficult, and perhaps more troublesome, ordinary people relate to the social and the material as distinct and separate items.¹⁹⁰

Instead of introducing sociomateriality as an analytical construct in this thesis, the materiality and the social is instead presented. Given the already complicated nature of the thesis theoretical constructs, it's in the author's opinion that an even deeper philosophical discussions on the nature of technology as an object would only help deter the reader.

¹⁸⁹Orlikowski (2007) p. 1437

¹⁹⁰Leonardi (forthcoming) p. 16, Mutch (2013) p. 30ff